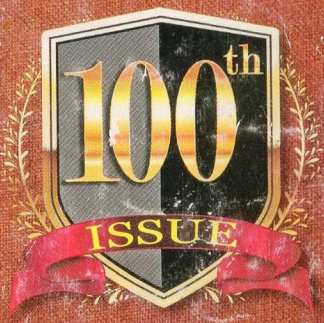
MANORAMA

TELL ME WHY

No:100



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MANORAMA

TELL ME WHY

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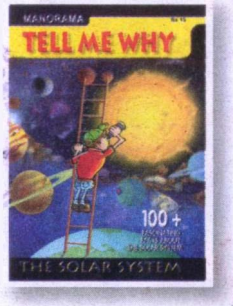
FROM THE HOUSE OF MAGIC POT, THE WEEK, MANORAMA YEARBOOK, VANITHA & THE MALAYALA MANORAMA DAILY



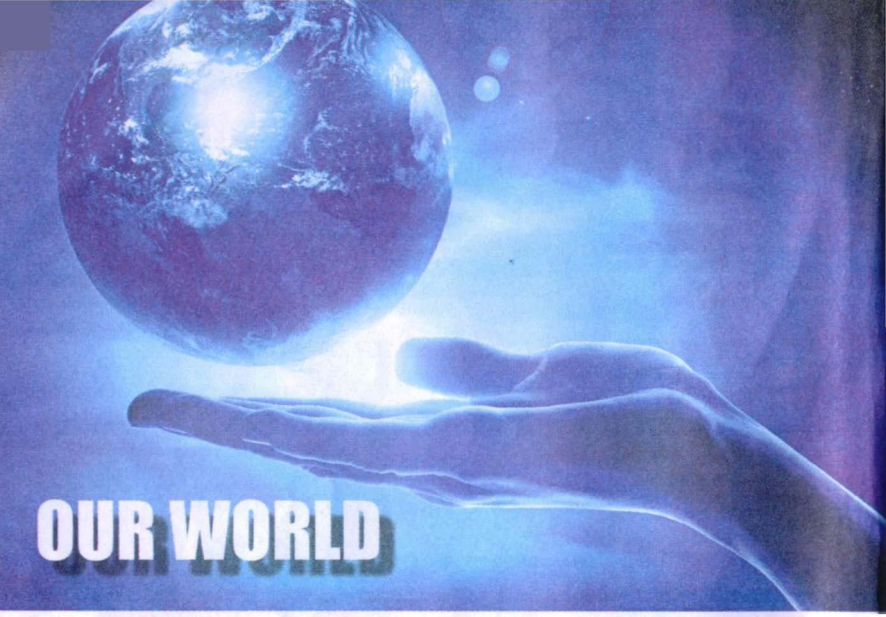
TELL ME WHY SCORES 100 !

Welcome to the 100th issue of Manorama Tell Me Why!

This is indeed a special occasion for us all, and we thought it appropriate to make our 100th issue itself a special one. So, we are happy to present, a collector's issue this time.

As the title suggests, the 'Best of Tell Me Why' presents selected questions and answers from the long line of our titles, starting with the very first one, 'Solar System'. For us, it has been a long journey from the first issue to the 100th.

We thank all the youngsters, parents and teachers who shared the joy of this exciting journey, and invite all of you to enjoy this unique issue.

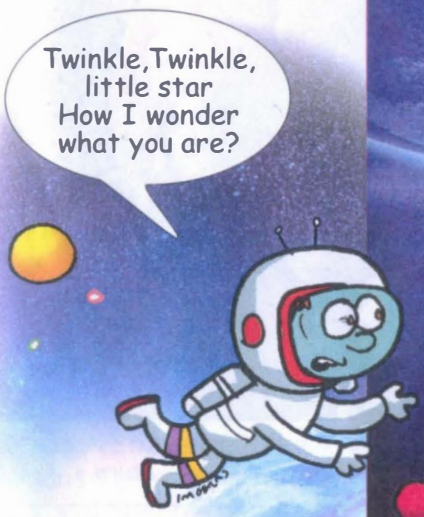


How did the Universe begin?

There are many popular theories regarding the origin of the Universe. The most prominent among them is 'the Big Bang' theory. This theory was first suggested by a Belgian priest named, Georges Lemaitre in the 1920s. Later, the idea got wide acceptance through the studies of Edwin Hubble, Arno Penzias, and Robert Wilson.

The Big Bang theory was born out of the observation that galaxies are moving away from one another at great speed, as if they had been geared by an ancient explosive force.

The theory states that some 20 billion years ago, a massive blast - a Big Bang - occurred,



and that allowed all the matter in the universe to spring from some unknown type of energy. After the Big Bang, the universe expanded at a great speed. The expansion still continues, but much more slowly.

But there are many scientists who still doubt the authenticity of Big Bang theory, because it leaves several questions unanswered.

Titan the Great!

The planet Saturn has many moons, and Titan is the fifteenth, and the largest of them. Titan is the only moon in the Solar System with a fully developed, planet-like atmosphere.

Saturn

Why do some planets have rings? What are they made of?

The rings of Jupiter, Uranus, and Neptune are made of dust, very tiny pieces of rock, and ice. The rings of Saturn are made of large pieces of ice.

We don't know for sure where these rings came from. In some cases, the rings have come from dust knocked off of the planets' moons by meteorite bombardment, but some of them might have come from moons torn apart by the planet's gravity, or they could have formed as the planets formed.

Saturn's rings are the most magnificent; they are bright, wide, and colourful. Uranus has thirteen dark rings around it, and Neptune's rings are also dark, but contain a few bright arcs.

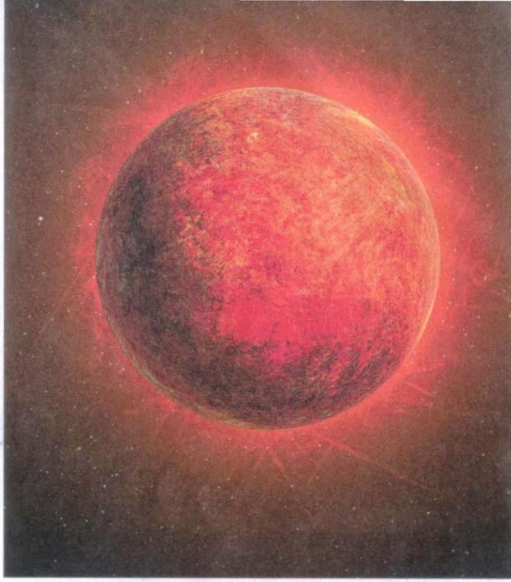
Could water exist on Mercury?

In 1991, scientists bounced radio waves off Mercury, and found an unusual bright return from the north pole. The apparent brightening at the north pole could be explained by ice on, or just under the surface.

But, is it possible for Mercury to have ice? Yes. Because Mercury's rotation is almost perpendicular to its orbital plain, the north pole always sees the Sun just above the horizon.

The insides of craters would never be exposed to the Sun, and would remain very cold. This freezing temperature could trap water outgassed from the planet, or ice brought to the planet from impacts with comets.

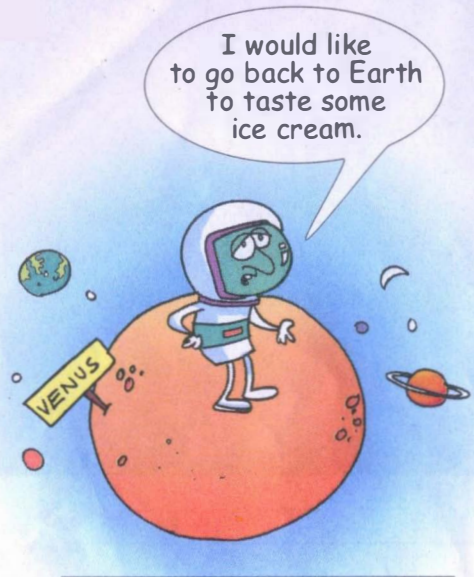
These ice might be covered with a layer of dust, and would show bright radar returns.



Mercury

Travellers We Are!

In a sense we are all space travellers, and our spaceship is the planet Earth itself. It zooms along its orbit at the speed of 1,07,000 kilometres every hour- only we don't realise it!



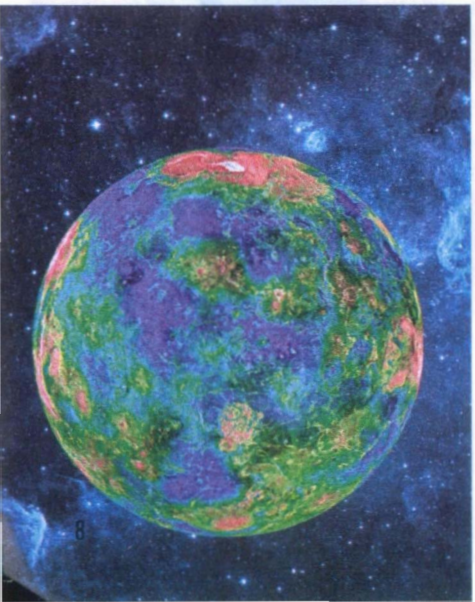
Venus - Topographical Map

Can we some day, live on Venus?

Venus was at one time considered to be a more likely home than Mars for earthlings, but revelations by way of space probes, radar, and radio astronomy are not encouraging in this respect.

The average surface temperature is indicated at a rather very uncomfortable 462^0 C!

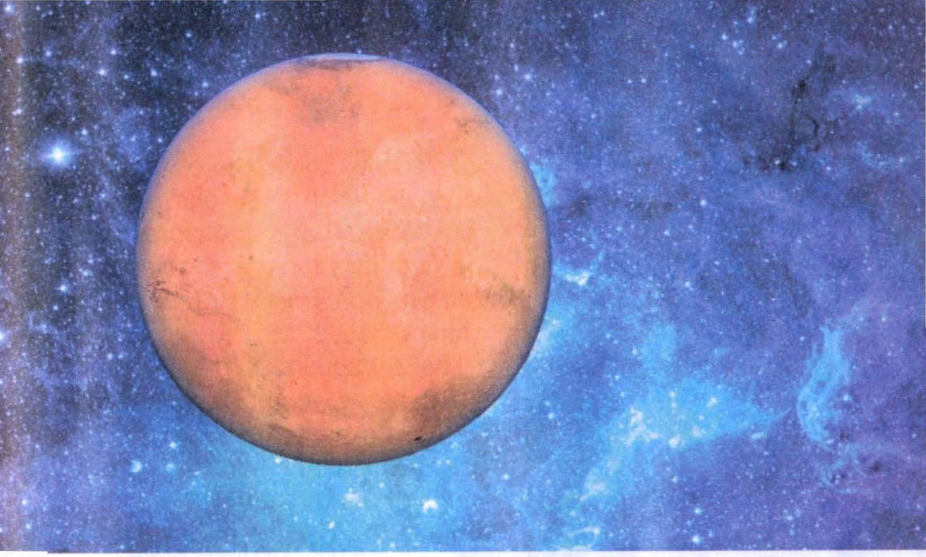
Then, too, there is no water on the surface; the atmosphere is deadly; and the pressure is tremendous.



Are comets covered in an envelope?

As a comet absorbs ultraviolet light, chemical processes release hydrogen, which escapes the comet's gravity, and forms a hydrogen envelope.

This envelope cannot be seen from Earth, because its light is absorbed by our atmosphere, but it has been detected by spacecrafts.



Mars

It's me - Mars!

Mars was given its name by the Romans in honour of Mars, their god of war.

What are the effects of the seasons on Mars?

The most noticeable features of Mars are the ice caps at its north and south poles. Since Mars is tilted at about the same angle that Earth is, it has seasons, as we do.

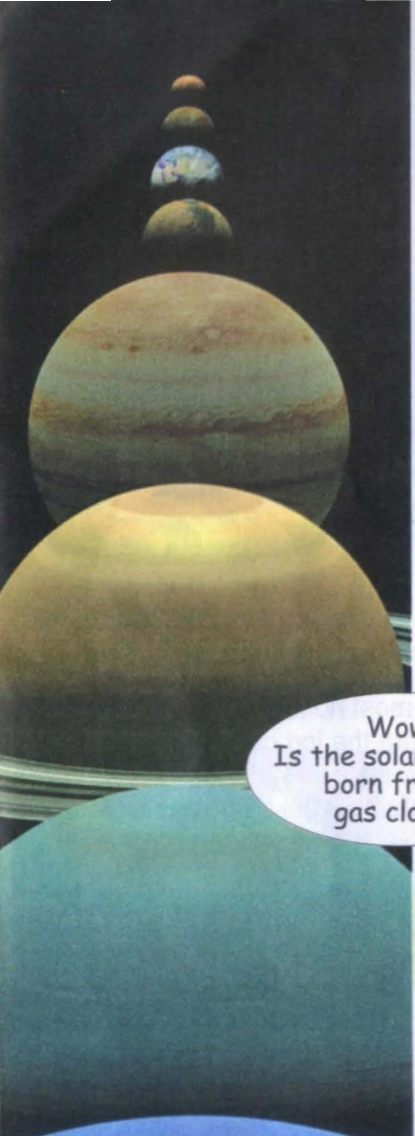
The effect of the seasons can be clearly seen in the growing and shrinking of the polar ice caps.

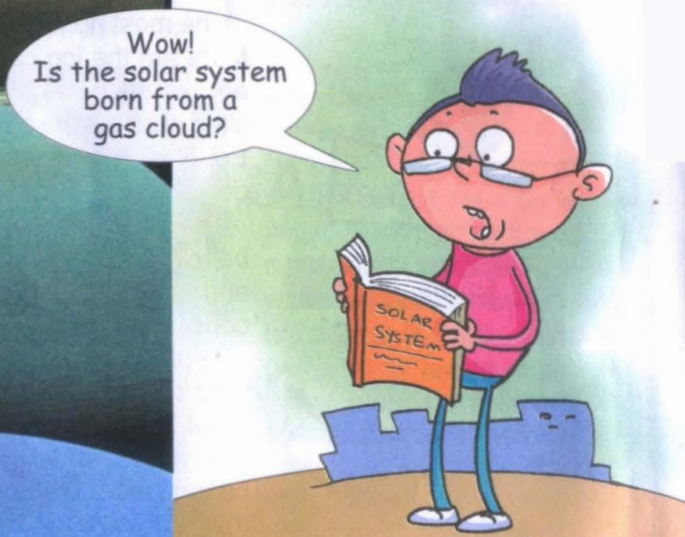
Another seasonal change has long created an impression that there is some form of plant life in low-lying areas. These areas change from blue-green in summer, to brown in winter.

How did the Solar System begin?

Scientists think there are two ways in which the solar system could have begun. According to the nebular theory, the solar system was born from a great cloud of whirling gases.

The attraction of gravity drew the atoms of the gas closer together. As the gas condensed into a ball, the circular motion increased. Rings of matter were left spinning around the central mass. These condensed to form the planets, and the central ball of gas became the Sun.





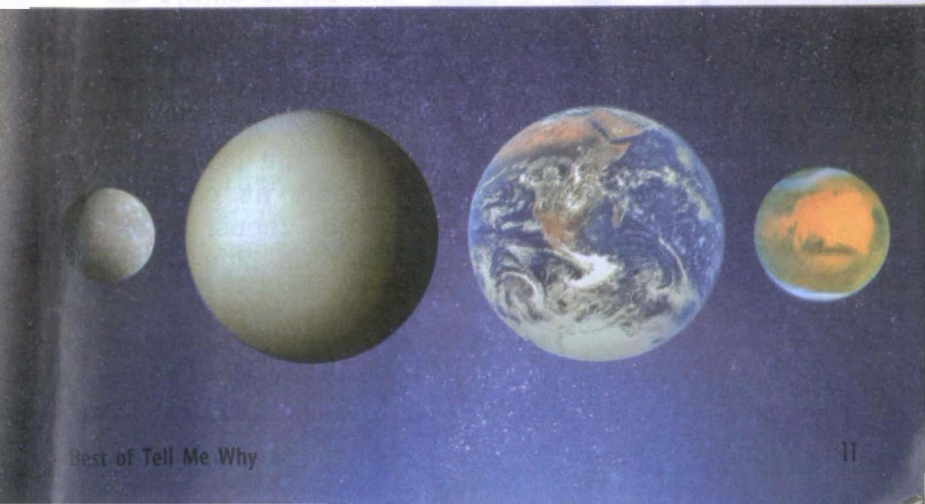
Proud Olympus!

Mars has the biggest volcano in the Solar System- 'Olympus Mons'. It is three times higher than Mount Everest!

Could there be a collision of planets?

No. There is no reason for such a fear. The planets and stars are so far away from each other, even though we don't realise it.

Let's imagine that your own head is the Sun, both in its size and location in the Solar System. Your head is then in the centre of a number of rings of different sizes. These rings are the orbits which the planets travel around the Sun. With your head as the centre, Mercury, revolving in the nearest ring, is six metres away from you! It is about as large as the dot at the end of this sentence. (Remember, the size of your head is the size of the Sun.)



Mercury, Venus, Earth and Mars

What would be the view like, from Mercury?

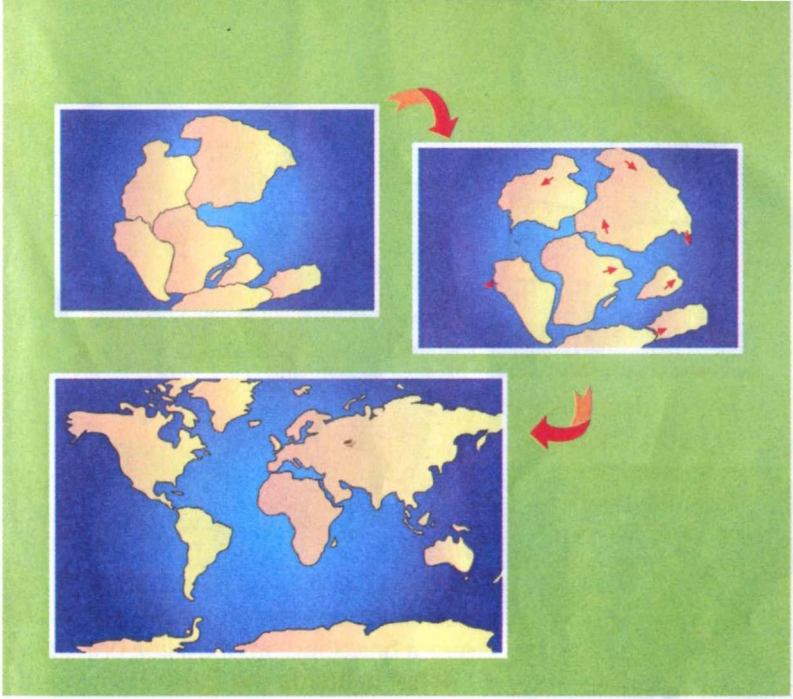
If an explorer were to step onto the surface of Mercury, he would discover a world resembling the lunar terrain. Mercury's rolling, dust-covered hills have been eroded from the constant bombardment of meteorites.

Fault-cliffs rise for several kilometres in height, and extend for hundreds of kilometres. Craters dot the surface.

The explorer would notice that the Sun appears 2.5 times larger than on Earth; however, the sky is always black, because Mercury has no atmosphere to cause scattering of light.

An explorer might see two bright planets. One appears as cream coloured Venus, and the other as blue coloured Earth.

Mercury - Photographed by the Space Probe Mariner



Why can you fit South America and Africa together like a jigsaw puzzle?

If you look at the map of the world, you will notice that east coast of South America fits exactly against the west coast of Africa, as if they were pieces of a jigsaw puzzle.

This is because millions of years ago, they were joined. In fact, 220 million years ago, all the continents were joined together to form one super continent called Pangaea. There was also only one giant ocean, Panthalassa.

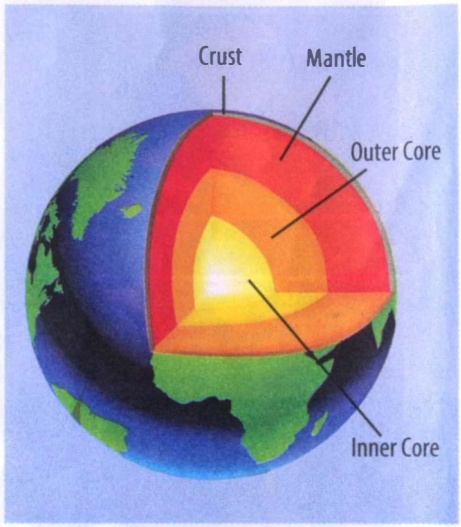
In time, Pangaea split into smaller land masses, and the continents began to drift towards their present positions. In the future, the movements of the tectonic plates will cause the continents to drift even more.

This will result in the Pacific Ocean shrinking, the Atlantic Ocean getting wider, and Africa splitting into two!

Curious Fact

Antarctica!!!

The coldest place on Earth is Vostok in Antarctica. Here, the temperature can fall to a freezing -89.2⁰ C.



What is inside the Earth?

If you could make a journey into the heart of the Earth, what would you find? Well, you would start from the surface of the Earth, which is a hard crust of rock. The rock is not continuous, but has many cracks. This is split up into large slowly moving plates called tectonic plates.

As you go deeper, you would notice many changes. It would get hotter and hotter, as you enter the next layer. This is called the mantle. The mantle is so hot, that the rock here is not solid, but molten. The molten rock, known as magma, is constant-

Why do rivers wind?

As a river nears the sea, it starts to twist and turn in horseshoe shapes called meanders. Some rivers meander more dramatically than others.

Do you know why this happens? When a river enters the plains and encounters an obstacle, it is moving more slowly than before, and simply curve around it. As the river flows around this bend, the current becomes strongest at the outside of the curve. This increased rate of flow encourages erosion, and tends to pick up particles from the river bottom, and soil from the bank and move it downstream.

The current on the inside of the bend is slower, and deposits gravel, and other solids. As the erosion on the outside of the bend continues to occur, the deposits of materials on the inside of the bend also continues. This forms a meander in a river.

ly moving. About 6400 km below the surface, you will reach the core of the Earth.

The Earth has an outer core, and an inner core. This is made mainly of molten iron, and the temperature in the heart of the Earth is 5500^0 C!

A Forest destroyed by Acid rain

What is acid rain?

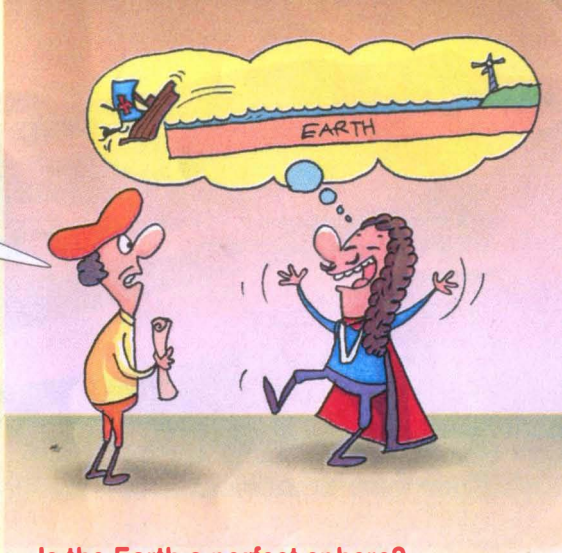
Acid rain is rain that has a larger amount of acid in it than what is normal.

Acid rain is caused by smoke and gases that are given off by factories, and vehicles that run on fossil fuels. When these fuels are burned to produce energy, the sulphur that is present in the fuel combines with oxygen, and becomes sulphur dioxide. Some of the nitrogen in the air becomes nitrogen oxide. These pollutants go into the atmosphere, and become acid. Sulphur dioxide and nitrogen oxide are also produced when coal is burnt for fuel.

Acid rain destroys trees, harms wildlife and eats away the stonework in buildings. It also gives us asthma, and coughs!

Hello, Yellow...

The Huang He or Yellow River, in China, got its name because of the yellow colour of water, which is caused by the silt it carries.

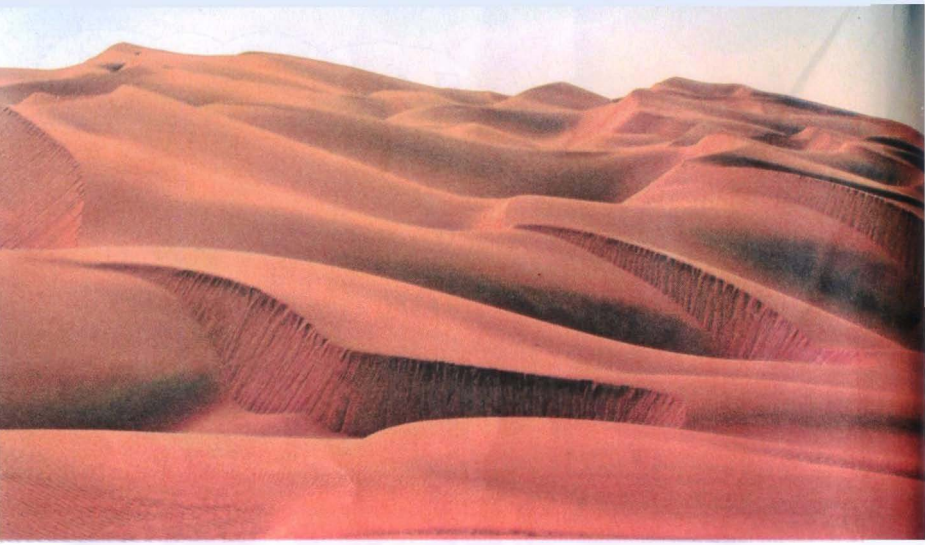


Is the Earth a perfect sphere?

If you look around, the Earth looks flat. Even before the Middle Ages, people did think it was flat.

The flat Earth concept persisted till about 300 years ago. In fact, people used to think that if they sailed too far in one direction, they would fall off the edge of the Earth! Pythagoras was the first person to talk about the Earth being spherical. A practical demonstration of Earth's sphericity was achieved by Ferdinand Magellan's expedition's circumnavigation.

It was Sir Isaac Newton, who first claimed that the Earth is not spherical, but 'oval'. Today, we know that the Earth is not a perfect sphere. It is slightly flattened at the poles, and bulges at the equator.



Why is the desert dry?

The main reason for this is that deserts get very little rainfall.

Deserts near the equator are dry. This is because in these places, instead of hot air rising, and being replaced by cool moist air, air settles downwards, and becomes warmer and drier as it does so.

Deserts that are far away from the equator are generally dry, because of their distance from the sea. This prevents moisture laden winds from reaching them. Sometimes, there are mountains which act as barriers to the winds. These mountains will get rainfall on the side facing the sea, but the side facing land doesn't get any rain.

There are sandy deserts, where the wind builds sand hills ordains. Rocky deserts consist of bare rocks. Cold deserts are located near the Arctic region of the world.

Deepest Trench!

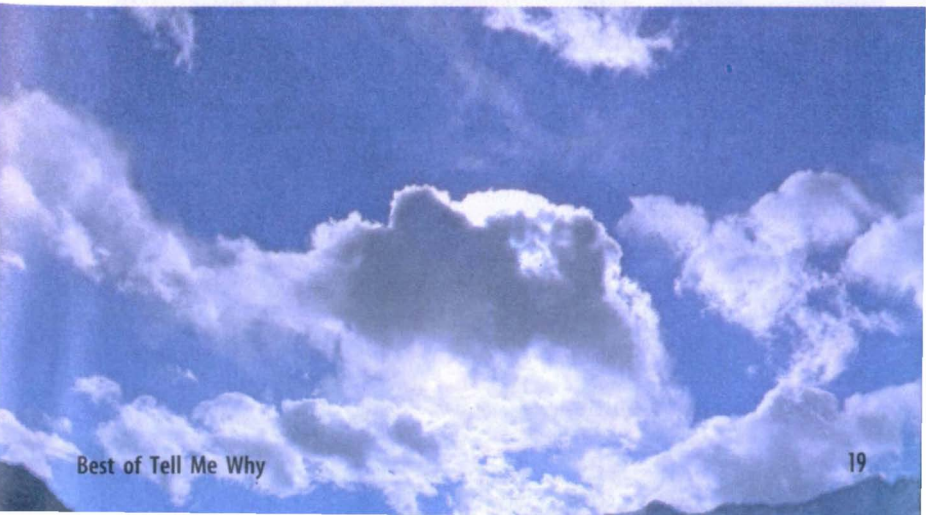
The deepest known depression on the surface of Earth is the Mariana Trench, in the Pacific Ocean. Its maximum depth is 10.994 kilometres. The highest mountain peak on the land, Mount Everest, can fit into in this trench! The height of the Mount Everest is only 8.848 kilometres.

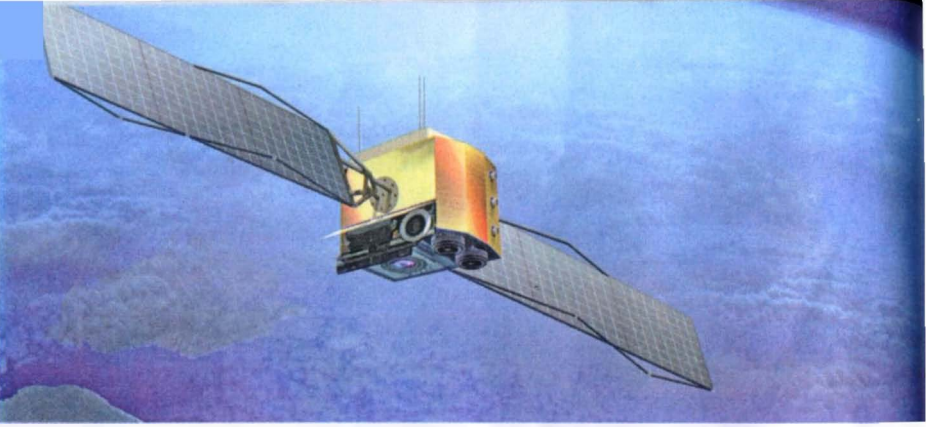
Why do we say that weather is different from climate?

When we talk about weather, we are talking about day to day changes in the atmosphere. Is it going to be sunny or cloudy, or is it going to rain or snow?

When we talk about climate, we talk about changes in long term averages of daily weather. So, we can say that climate is the trend in weather patterns over an extended period of time.

Scientists keep day to day weather statistics for 30 years in order to draw conclusions about local and regional climates.



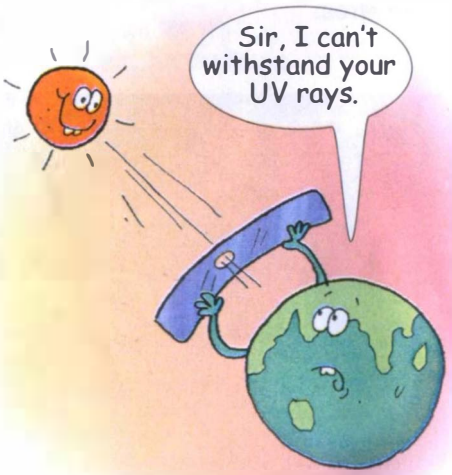


How do meteorologists study the atmosphere?

Scientists who study the atmosphere are called meteorologists.

By studying the Earth's atmosphere, meteorologists are able to predict what the weather will be. In earlier times, hot air balloons carrying instruments were sent into the upper atmosphere to predict the weather.

Today, satellites that orbit the Earth send back information about winds, temperatures and ocean waves. Once the meteorologist has all the data he needs, it is analyzed and predictions are made. These weather predictions are not always correct, but as the methods of gathering information become more sophisticated, and the information itself becomes more accurate, weather predictions are becoming pretty reliable.



Cool Antarctica!

Antarctica is the coldest place on Earth. Its freezing air tends to be extremely dry because very cold air holds only a small amount of water vapour.

Why do modern jet airliners fly above the clouds?

Clouds and rain form only where there is water vapour, and water vapour forms only in the lowest layer of the atmosphere called the troposphere.

To avoid a rough flight caused by bad weather, modern jet airliners fly above the clouds, in the next layer of the atmosphere called the stratosphere.

The air in the stratosphere has no water vapour, and so it is still and clear. This means no bumps, so that you have a comfortable flight!

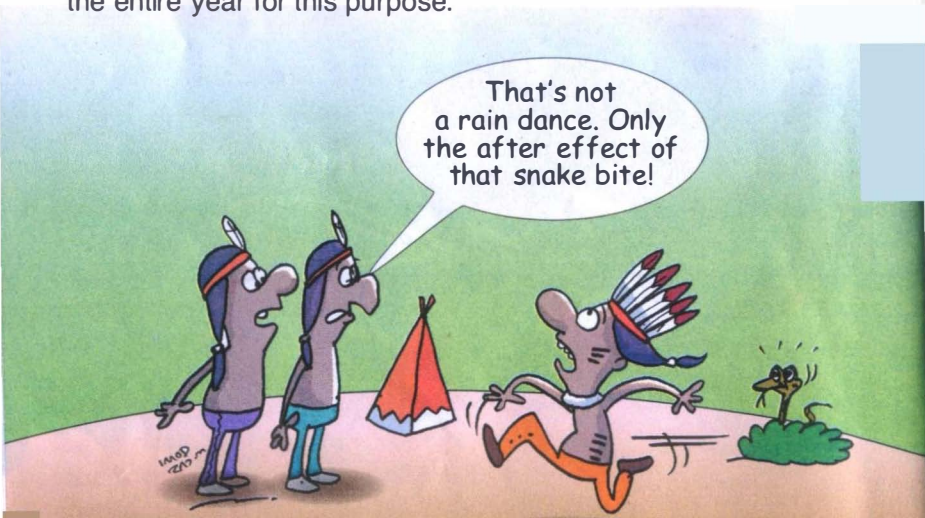
Why were rain dances performed?

A rain dance is a traditional dance performed to please the Rain God so that he may bless the land with rain. It was especially popular among the Native American tribes and the tribes in Africa.

Many Native Americans still perform the ritual today, and it can be seen on several reservations in the United States.

Men and women together perform a rain dance, and wear special headdresses and clothing. The jewels used in the clothing, such as turquoise, have special significance, as well as the patterns on the clothing and the use of goat hair in the headdresses.

These special clothes are worn every year for the rain dance, and are usually are stored the entire year for this purpose.



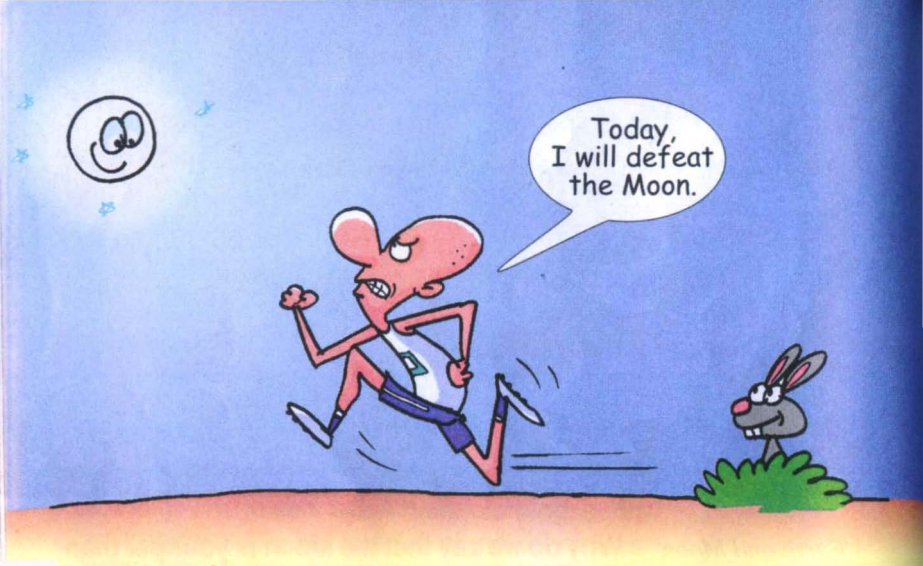
Earth and Moon

Why do we say that the Moon is younger than the Earth?

Human beings have always wondered about the origin of the Moon. The Greeks were perhaps the first to study our satellite. But, modern scientific study of our neighbour began in 1609, and there are many theories about its origin. The most popular one is 'Giant Impact Hypothesis'.

According to this theory, about 4.5 billion years ago, our Earth was hit by a large body which was about the size of Mars. This impact blasted portions of the Earth into the Earth's orbit. The broken pieces gradually came together, along with the gas and dust which solidified, to form the Moon.

Molten lava then oozed out of the interior of the Moon for the next two billion years. So, though the Moon is billions of years old, it is still younger than the Earth!



Why does it feel as if the Moon is following us wherever we go?

When you travel by train, the houses and trees outside seem to be rushing backwards. However, no matter how fast you travel, the Moon and the stars do not rush backwards, but seem to move along with you. Why is this?

When things are near us, we move past them very quickly. After that, we don't see them any more. That is why trees and houses seem to rush past at great speed.

But, when things are far away, we'll see them for a longer period, since it takes a longer time to go past them. This explains why distant objects like mountains don't seem to rush past the window of a moving train.

You know, the Moon is very, very far from us. That is 3,84,400 kilometres away! Because of its great distance, the angle at which we view the Moon changes very little as we move.

Even if we travel 200 kilometres per hour, it remains in relatively the same position in the sky. So, wherever you go, the Moon appears to be in the same position, almost as though it is following you.

Supernova!

The supergiant stars in the Universe explode from heat and expansion. This explosive death of the star creates a temporary brightness of millions of suns! This phenomenon is known as a supernova.

Will the Universe end?

It is difficult to think that the Universe might end some day. But cosmologists, the people who study the Universe, are sure it will.

They think it will stop expanding outwards, and start shrinking back to nothing. They call this event the 'Big Crunch'. The stars will burn out gradually, and finally, there will be just lumps of rock and dust floating around.

However, don't worry too much about it. All this is billions, and possibly trillions of years from now. Moreover, there are still some scientists who think that this won't happen at all, and that the Universe will go on forever.

They figure that gravity won't allow the Universe to stop expanding, and so, it will just keep getting bigger and bigger!

Black hole - A Visualization

What is a black hole?

Black holes are the most mysterious bodies in the whole Universe.

Astronomers consider a black hole as a stage in the evolution of the star. They are probably formed when a supernova occurs. If a star is ten times more massive than the Sun, no known force can stop the increasing gravity, and it will collapse to a point of infinite density. Before this stage is reached, within a certain radius, light itself becomes trapped, and the object becomes invisible, and becomes a black hole.

With the invention of invisible radiations like radio waves, ultraviolet, X-rays, gamma rays, etc., locating the invisible black holes has been possible. Black holes are the densest areas in the Universe.

Black Hole

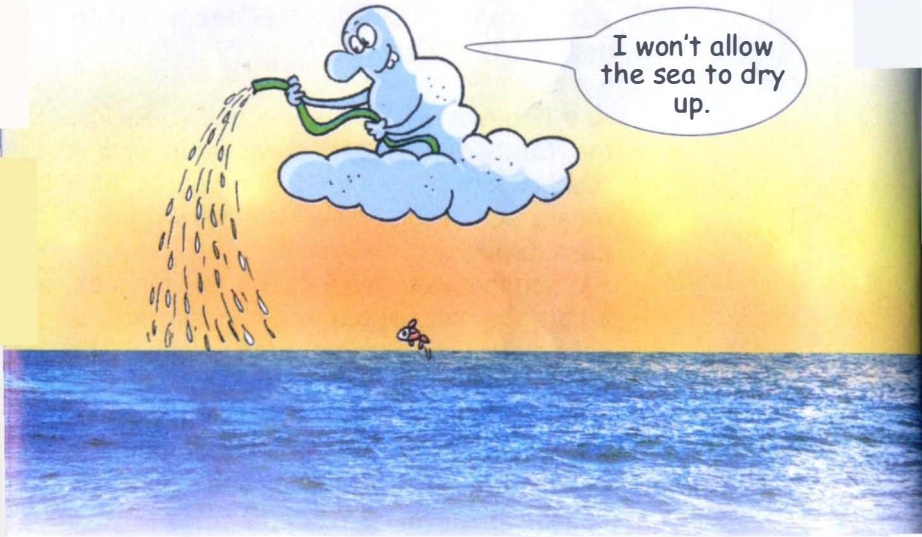
The physicist John Wheeler coined the term 'black hole' in 1967. Before him, we knew black holes to be 'dark stars,' or 'frozen stars'.

What happens to water that seeps underground?

Whenever rain falls, some of it soaks into the Earth, and seeps downwards until it reaches non-porous rock. Non-porous rock means something that will not allow water to pass through.

When the water reaches non-porous rock, it spreads out, so that large areas become saturated with underground water. The underground depth at which point the ground is totally saturated with water, is known as the water table. The water table varies in depth from place to place, and season to season.

However, water does not move around in the same way in all rocks below ground, because rocks have different porosity. Porosity refers to a rock having minute holes through which liquid may pass.



Why does the water in oceans and the sea not dry up?

The Sun heats the water in the sea, and turns it into water vapour.

The water vapour forms clouds that rise high in the air. When the clouds meet the cold air in the sky, they become rain.

The rain falls into the sea to become sea water and the whole cycle is repeated. This is why the seas and oceans do not become dry.

What are trade winds? How did they get their name?

The trade winds are a pattern of wind, found in bands around the Earth's equator. They are the prevailing winds in the tropics. They blow predominantly from the northeast in the Northern hemisphere, and from the southeast in the Southern hemisphere.

The name came from an old nautical term in Middle English, 'to blow trade'. 'Trade' in Middle English meant 'path' or track. These winds helped the traders to navigate ships around the world.

Submarine

I'm Dead!

The water of the Dead Sea is so salty that nothing can live in it. This is why it is called a 'dead' sea.

What is the difference between a submersible and a submarine?

Both are craft that travel under the sea. Submarines are much bigger than submersibles, and are not tied to a surface support ship. They carry air, and all their supplies with them.

Submersibles are connected by cables that supply power and air to the crew. Submersibles can go to the deepest parts of the ocean, and are mostly used for research and exploration. Submarines usually belong to the navy, and are used for patrolling.

A Bird coverd in oil spilt in Black Sea

How do oil spills harm sea animals?

Oil spills contain poisonous chemicals which are readily absorbed through the skin of sea animals, harming them. Some sea animals like seals may react to oil spills by not eating, so that they starve to death.

Sea otters can easily be harmed by oil, since their ability to stay warm depends on their fur remaining clean. Fish and shell fish may be tainted and unsuitable for eating for a year or more after an oil spill.

During most oil spills, seabirds are harmed and killed in greater numbers than other kinds of creatures. If oil remains on a beach for a while, other creatures, such as snails and clams, may suffer.

Why is the sea blue?

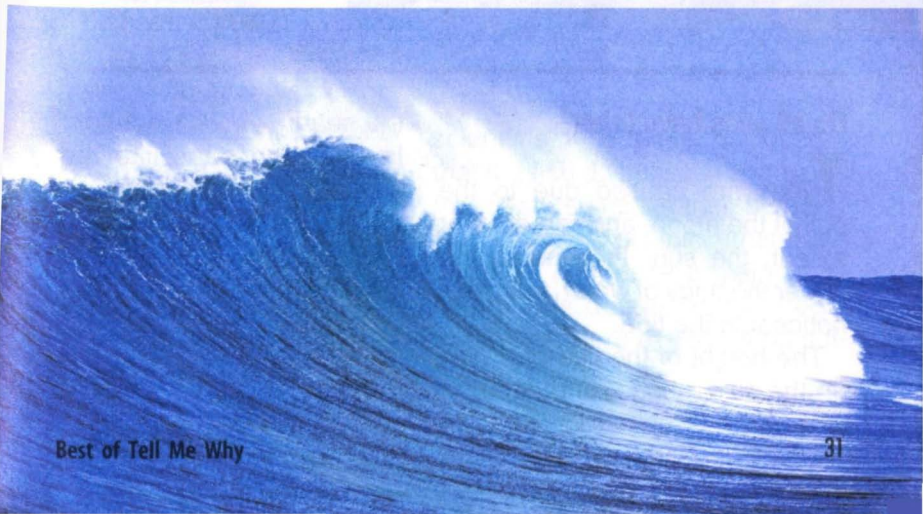
To know the answer to this question, you must first understand that sunlight is made up of different colours, from red, orange, and yellow, to green, and blue.

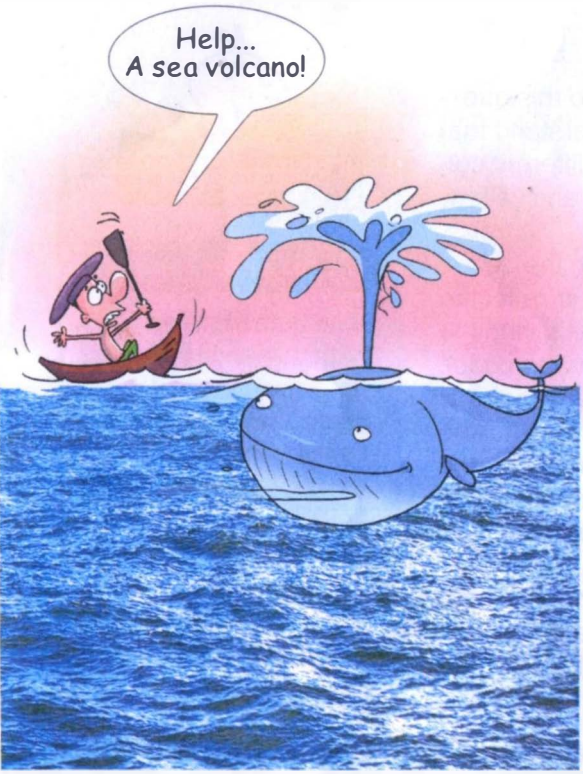
When sunlight falls on the sea, it is the colour blue that is reflected by the water most easily, giving the sea its blue colour. Near the coast, sea water takes on a yellow or brownish tinge. This is due to the mud that rivers discharge into the sea, and the vast number of tiny plants and animals near the surface.

When clouds hide the sun, the sea will look grey. Weather conditions can also change the colour of the sea.

Ebb Tide

The time between high tide and low tide, when the water level is falling, is called ebb tide.





Are there mountains and volcanoes under the sea?

There are thousands of mountains under the sea. All of them are volcanoes, but some of them do not erupt anymore.

There is a long chain of undersea mountains all the way down the Atlantic Ocean. It is called the Mid-Atlantic Ridge, and is the longest chain of mountains in the world.

The highest sea mountains are over 10,000 metres tall!

Do all seas have tides?

Tides are caused due to the pull of the moon, and to a smaller extent, the sun. In general, the larger the body of water, the more noticeable the tide.

The height of the tide depends on the size, shape, and depth of the sea in a given location. In enclosed seas like the Mediterranean, there is hardly any tide at all, because it is surrounded by land on all sides. The rise and fall of the water may be only a few centimetres.

Arctic Ocean

Curious Fact

Earthquakes

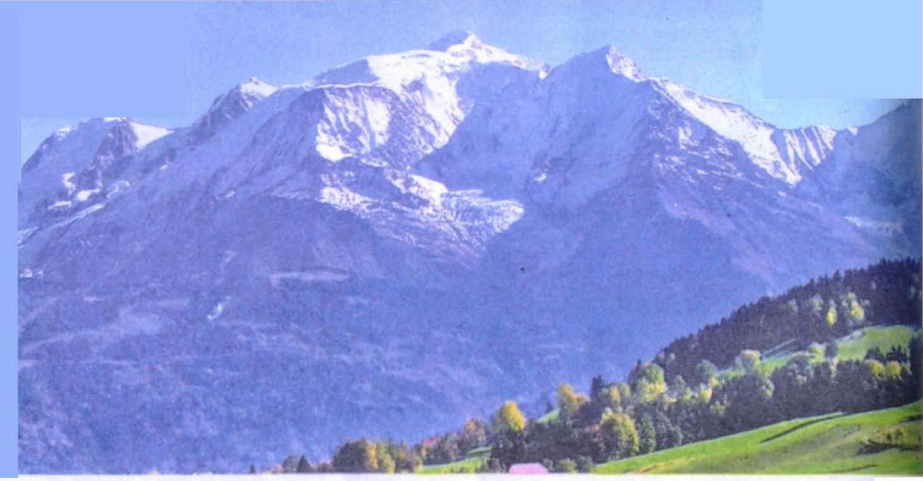
In Japan, people thought earthquakes were caused by a giant catfish wriggling about on the sea bed.

Why don't Arctic fish freeze?

Fish are cold-blooded animals whose body temperature changes according to the surroundings. So, normally at the below freezing temperatures of the Arctic, fish should be freezing, or they shouldn't be living there at all!

The puzzle has been solved by scientists who have discovered that the fish do possess some anti freeze substance in their blood.

The Arctic sculpin, manufactures an antifreeze protein in its blood. This depresses the freezing temperature of its plasma sufficiently.



Why are the Alps known as 'Europe's Playground'?

The beauty of the Alps has made them a popular tourist destination. Their steep, snow covered slopes attract skiers by the thousands.

There are forest trails for hikers, swift flowing rivers for rafting, craggy peaks for rock climbing, and so much more. In fact, the Alps have become a summer and winter playground for millions of tourists from around the world.

Tourism, however, has brought its own set of problems to the Alps. Forests have been cleared of trees, buildings have been put up, and all these activities have led to increased pollution of the soil, water, and air.

Why is a desert rose different from other roses?

The desert rose is neither soft nor fragrant. In fact, it is not a flower at all, but a gypsum crystal. Do you know what gypsum is? It is a mineral used in the manufacture of concrete, sheetrock, and plaster of Paris. In the desert, gypsum crystals are found in sand dunes.

The grains of sand interfere with the growth of crystals, and the result is that the crystals are formed in the shape of petals.

Desert rose gypsum is found in many locations around the world, and specimens found in different places can look radically different, but all of them are without doubt delicate beauties born of the Earth.

Desert Rose

NATURAL WORLD

Why are honey-pot ants useful to other ants in a colony?

As their name suggest, honey-pot ants are like living pots of honey. They are found in the fringes of deserts. After the rains, there is so much nectar from ephemeral plants, that the ants in a colony cannot use it all.

They feed some particular ants in the colony with the nectar until their whole abdomen swells up with honey. These chosen ants are the honey-pot ants. The abdomen of the ants swell up so much that they can be the size of grapes! During a drought, the other ants will feed on the honey, and the honey-pot ants' abdomens shrink back to their normal size.

How do feathers get their colours?

There are two sources of feather colour – pigments, and the physical structure of the feather. Many feathers are coloured by a combination of these features. Pigments are chemical compounds that absorb certain wavelengths of light while reflecting others. The colours you see are those reflected back. Feathers coloured by pigments, range from crow black to canary yellow, and cardinal red.

Many colours, such as blue, are a result of feather structure. When light hits these feathers, it hits microscopic structures on the feather that act as prisms to reflect a colour. No blue pigment is known in birds.

Shimmering iridescent colours such as those found in peacocks, are caused by special structures, air bubbles, or films on feather surfaces. These modifications interfere with the bending and scattering of light to strengthen some wavelengths, and cancel out others.

What is a plankton?

Planktons are microscopic plants and animals that float near the top of the ocean. Plankton is food to a large number of marine creatures, from tiny fish to the mighty whale. As such, they are the basis of the food chain. They also support the earth by producing oxygen during photosynthesis

Which predator looks like a plant?

The sea anemone looks like a small, bushy plant. It is actually a dangerous predator. It has a small tube-like body, with a mouth at the top, surrounded by tentacles.

The tentacles are covered by tiny stinging cells that protect the animal, and inject poison into its prey. The poison paralyses the prey, and the sea anemone uses its tentacles to push the prey into its mouth.

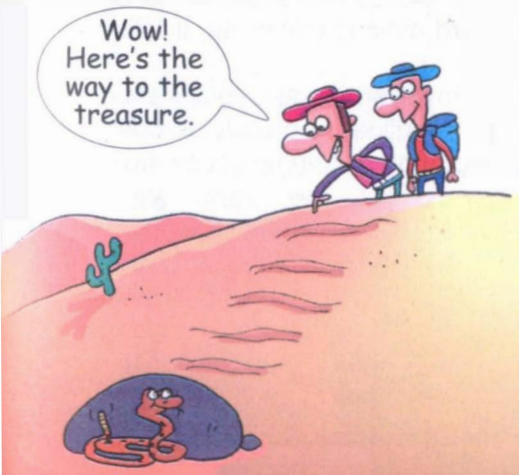
Sea anemones are found everywhere in the ocean. If you come across one, be sure to avoid it!

How did the desert sidewinder get its name?

If you are ever in a desert, and see parallel tracks in the sand, you can be sure that a desert sidewinder has passed that way. It is one of the most truly interesting animals that have adapted to the desert environment.

Unlike other snakes that crawl using bottom scales to push themselves along, the sidewinder moves sideways! It throws its head in front of its body, uses it as an anchor, and then slithers sideways.

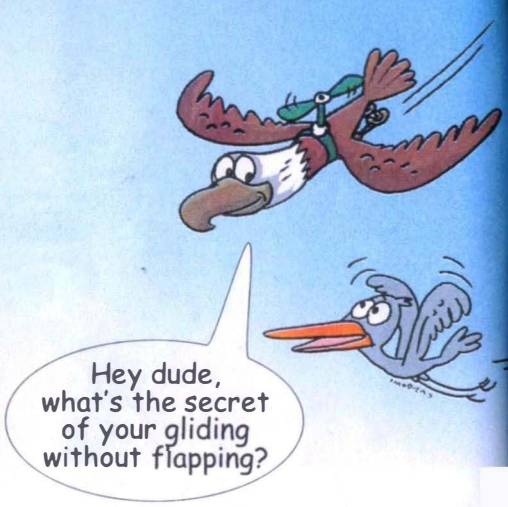
The scales underneath its body grip the sand and leave parallel tracks in the desert. This is a very efficient way of travel across the sand dunes of the desert, and it is this method of moving that gives the desert sidewinder its name. The poisonous sidewinder is also called the 'horned rattlesnake.'



How do eagles glide, without flapping their wings?

If you watch an eagle's movements through binoculars, you will see that even though the bird appears to be gliding lazily, it is actually very active. Its outer wing feathers and tail feathers are in constant motion, catching up-drafts of warm air, and steering the bird through moving air currents.

Like other objects, which are heavier than air, birds in flight are constantly falling. When a bird is in an up-draft of warm air, it is carried up more quickly than it falls. At this time, it can fly higher.



The bird now tries to keep itself in this column of air by steering with its wing and tail feathers. When the bird moves into a column of downward moving cooler air, it falls rapidly.

However, it now uses its wings to help it glide, as quickly as possible, into another column of upward moving warm air. The speed that the bird attained while gliding downward in the 'cool column' enables it to sweep upward more quickly when it enters the 'warm column'.

Hoatzin

It's your house!

The hermit crab, which does not have its own shell, lives in the the abandoned shells of other creatures. As the crab grows, however, it moves to a bigger and more spacious shell.

Which amazing bird has feet on its wings when it's young?

The hoatzin, a bird that lives in South America, has two very unusual wings. They don't have feet on them, but they do have fingers. That's right, fingers!

The bird is born with one finger at the end of each wing. Before it has learned to fly, the bird crawls around on its fingers.

That way, it can escape from the nest if it is in danger, and even catch some of its own food. Once it becomes a mature bird, and learns to fly, the fingers disappear.

Why are there so many flightless birds in Australia?

There certainly are a lot of flightless birds in Australia and New Zealand. Australia has two kinds of flightless birds,the Cassowary and the Emu. New Zealand has the Kiwi, and Takahe.

Cassowaries, Emus, and Kiwis are all related to one another. They all are members of the same group of birds called ratites.

The explanation for ratite flightlessness is that they all inherited the trait from a common ancestor, that had evolved from birds who could fly. Ratites are spread over continents that were once joined in a single landmass called Gondwana. So, they didn't have to fly to where they are now - they walked there, and over millions of years, the continental drift has moved them apart.

As for the Kakapo and the Takahe, each bird is closely related to a bird species that can fly, so flightlessness evolved independently in these birds.

An Emu

Why do we say that mushrooms sprout up overnight?

A mushroom is only the fruiting, or reproductive structure of the fungus. The main body of the fungus grows out of sight, in rotting logs, manure heaps, or other dark, damp places.

Warm, damp weather can trigger the sudden appearance of the part that is visible to us- the mushroom. The first portion to show up is a small round button, made up of densely packed hyphae. Soon the stem elongates, and the cap enlarges to its full size. The entire process is a rapid one, for mushrooms need very little energy to grow. This is why mushrooms seem to sprout up overnight. But actually, it is the end of a long process that started with spores leaving a mushroom that is some distance away.

Mystery under the Sea!

The five Archaeopteryx fossils found in Germany in 1861 all came from an area which was once flooded by sea.

Ostrich

Largest Flier

Ornithostoma (meaning 'bird mouth') was the largest of all flying creatures. Born with a 3 metre wingspan, it had an udult wingspan of over 6 metres. Its wings were made of skin, and were somewhat similar to those of modern bats.

Do ostriches really hide their heads in the sand?

No, ostrich living in captivity, or in the wild, has ever been seen to do such a thing. At the approach of another animal, ostriches sometimes bend their necks close to the ground, and listen intently. This may be what has given rise to the belief. The ostrich, in fact, has a much better way of coping with possible attack from an enemy. It simply runs away!

Curious Fact

The Heaviest Bird!

The African kori bustard is the heaviest flying bird. Sometimes, it even has trouble getting off the ground! The lightest bird is a bee humming bird.

How did birds evolve from reptiles?

It all started some 200 million years ago, when some smaller dinosaurs made their homes among rocks on high cliff-sides. By doing this, they were protecting themselves from larger meat-eating dinosaurs that were too big and heavy to climb over loose rocks.

It was here that the pterodactyls (meaning 'wing finger') were found. They were flying reptiles, and their ability to fly helped them to escape from the clutches of an enemy, and to swoop down to grab food. During this period, many small reptiles were evolving characteristics, which separated them from the reptile group - their feathers.

The Archaeopteryx was the most familiar of these early reptilian avian. Other kinds, such as the Ichthyornis, had even more bird-like characteristics, and were about the size of present-day gulls.

Swimming Bird

The fastest swimmer in the bird world is the gentoo penguin. It can race through the water at up to 36 kilometres per hour!

How do birds' feathers work in helping them to fly?

Feathers, are important parts of a bird's 'flying equipment'. A bird's tail feathers are used for lifting, steering, and breaking, and these are perfectly symmetrical, to allow a balanced and smooth flight.

Along the sides of a bird's feathers are barbs, which if separated, look like a fringe, or even like the threads that stick out from the edge of a piece of unstitched cloth. Since these barbs end in hooks, they hook on to one another efficiently, making a strong, but light flying wing.

Andean Condor

What are the characteristics of Andean Condor?

The Andean condor, with a wingspan of up to 3.2 metres, is the largest flying bird! This bird lives in the Andes Mountains of South America. Both the Andean condor, and its slightly smaller cousin, the California condor, have unusual wings which allow them to soar only when there is an upward rising air current, and when the weather is dry.

When it rains, condors cannot fly, so they must stretch out their wings, and allow them to dry, before they can once again take to the air. California condors are an endangered species.

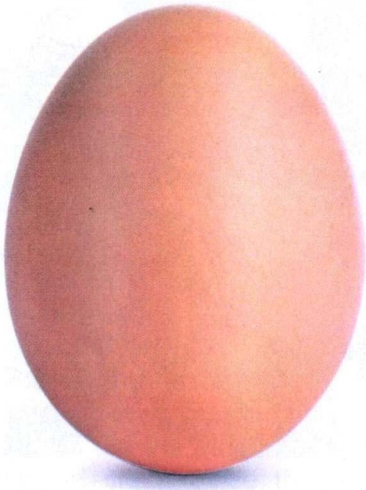
The wandering albatross is also a large flying bird. From one wingtip to another, it's as long as a family car!

It's a Study

The study or collecting of eggs, in particular, bird eggs, is called Oology.

Wolf Talk

It is often believed that wolves howl at the moon. But the wolves howl, whether the moon is out or not. Through their powerful voices, they are in fact talking to other members of their pack, who have spread out to hunt. Or, they may be warning other packs to stay away.



Why do eggs have the 'egg shape'?

Most bird eggs have a characteristic oval shape, with one end rounded, and the other more pointy.

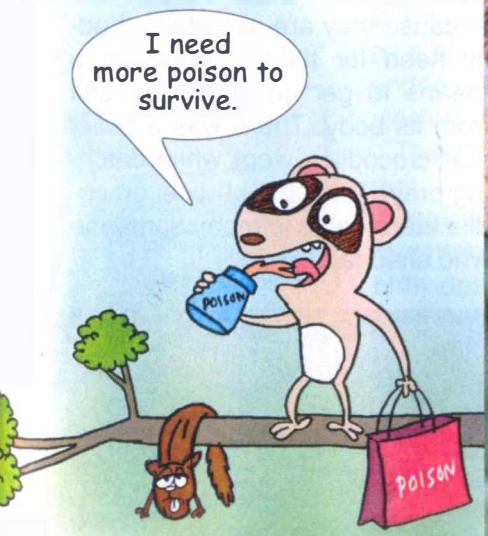
This shape results from the egg being forced through the oviduct. Muscles contract the oviduct behind the egg, pushing it forward. The egg's wall is still shapeable, and the pointy end develops at the back side.

Highly conical eggs are often seen in cliff-nesting birds. They are less likely to roll off, tending instead to roll around in a tight circle, and thus, are believed to have been selected for survival by evolution. In contrast, many hole nesting birds have nearly spherical eggs.

Which primates eat poison?

A primate called the loris eats insects that are poisonous. In fact, if any other animals ate those insects, they would get a heart attack.

Another primate, the golden bamboo lemur eats shoots of giant bamboo that contain cyanide. Cyanide is a very powerful poison that can kill a man in minutes!



Golden Bamboo Lemur

Why are invertebrates generally small in size?

Most invertebrates are small, because they lack internal skeletons. An external skeleton makes it difficult for an animal to grow. If it grows too big, it will not fit inside the skeleton. If the skeleton grows bigger to accommodate the animal's increasing size, it becomes too heavy for the animal to carry.

Invertebrates that live in the sea can grow quite big, though. There are giant clams in the South Pacific that are 1.2 metres across, and weigh a quarter of a tonne! Giant squids can reach a length of 16.5 metres, and weigh a tonne!

Fruit fly

What are crocodile tears?

Crocodiles shed tears not because they are sad- it is a bodily need for them! Tears are a means to get rid of excess salt from its body. There was a belief that crocodiles wept while catching prey. Thus, the phrase 'crocodile tears' came to mean someone who shed false tears.

Crocodile

Sloth

Curious Fact

Laughing Hyena

The hyena can make two different types of calls. One sounds like wailing; while the other sounds like a laugh.

Why does the sloth's fur look green?

Have you heard the phrase "as slow as a sloth"? If you see a sloth, you will understand how this phrase came into existence.

The sloth is a slow-moving mammal that lives on trees. Sloths spend most of their lives hanging upside-down from tree branches; they eat, sleep, and give birth upside-down on the trees! They hold onto tree branches with strong, curved claws that are on each of their four feet. They are most active at night, and sleep all day.

Sloths have long fur that appears to be green in colour. This is caused by a coating of bacteria that grows on their fur. The bacteria provide nutrients to the sloth, and also act as a camouflage.

Vampire bat

Why is the diet of the vampire bat special and unusual ?

The vampire bat feeds only on blood – it is the only bat that has this special diet. It hunts at night, and when it sees a horse or a cow, it crawls onto its body. The vampire then shaves away a small portion of skin, and when blood starts flowing, laps it up like a cat. The vampire bat feeds about 30 minutes at a time, and drinks about 26 litres of blood a year.

Do you dare?

The Panther that looks jet black in colour, has actually got spots! But the spots are very faint, so you will have to get really close to see them.

What is bonsai?

Imagine a miniature orange tree laden with tiny fruits, growing in a tray. Don't you think it would look very attractive? Well, the art of bonsai specializes in the miniaturization of trees by growing them in trays or containers. In Japanese, the literal meaning of bonsai is 'planted in a container' and in Chinese it means 'tray scenery'.

The small size of the tree, and the dwarfing of foliage are maintained through a constant pruning of leaves and roots. It is important to remember that a bonsai is not a genetically dwarfed plant. It is any tree or shrub species that is actively growing, but kept small through a combination of pot confinement, and pruning of the crown and roots to create tiny, living masterpieces.

Bonsai

Sea otter

Which tool is used by sea otters when they eat food?

The sea otter enjoys a meal of shellfish.It uses stones to break open the hard shells of mussels, and crabs. It will lie on its back in the water, and place a rock on its chest. Then, it bangs the shellfish against the rock, until the shell cracks open, and the sea otter can eat the soft meat inside.

Is the banana a fruit or a herb?

The banana has the nature of both a fruit and a herb. The banana that you peel and eat is undoubtedly a fruit, for it contains the seeds of the plant. However, the banana plant, though it is called a 'banana-tree' in popular usage, is technically regarded as a herbaceous plant or 'herb' and not a tree. This is because the stem does not contain true woody tissue.

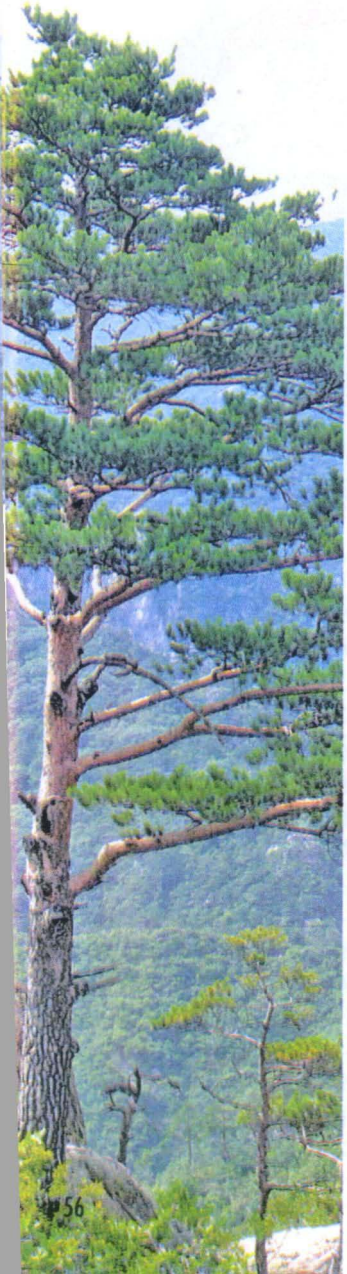
STAR FACT

Bitter medicine!

Quinine, which is used to treat malaria, is obtained from the bark of the cinchona tree. This tree is a native of the mountains of Peru, but is now widely grown in India, Java, and parts of Africa. Cinchona bark has a very bitter taste, and is used to treat many conditions including sciatica, dysentery, sore throats and muscle spasms, in addition to malaria.

Which herbs did witches use?

You must have read about witches, and how they wove magical spells using herbal brews. Do you know what some of their favourite herbs were? They used rosemary to make people remember things, and anise to avert bad luck. Dill was used as a protection against spells, and thyme was a herb that gave courage. Sage imparted wisdom, while coriander and fennel were used to summon demons! As a matter of fact, herbs were used for healing and magic before they were used to season food.

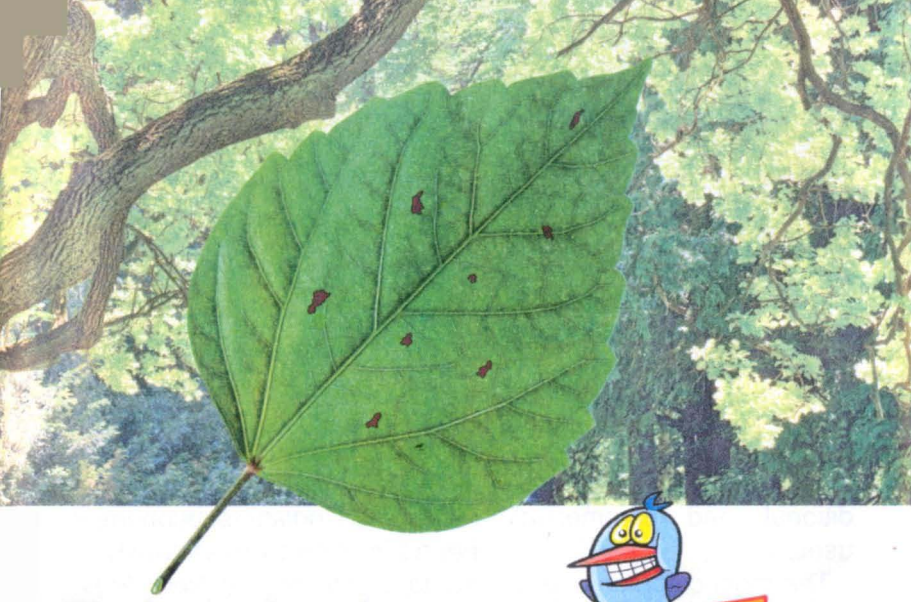


Why are pine trees called evergreens?

Pine trees have needles, instead of flat leaves, to survive winter hardship. These narrow leaves have a thicker skin, to retain water, and a thicker coating of waterproof wax. Their slender shape reduces the leaf area, which, in turn, reduces the amount of water vapour escaping from the leaf. These trees can also survive on fewer nutrients during the winter, and so, the leaves are not shed. Even when the old leaves fall, new ones replace them. So, the branches never look bare, which is why they are called evergreens.

Silky Flowers!

Have you seen the stalk of a corn plant? If you have, you will notice silky filaments emerging from the leaf whorl at the end of the ear. An 'ear' is that part of the plant that contains the flowers, and hence, the fruit, grains, or kernels. If a filament of silk, which is the female flower, is fertilized by a grain of pollen, it will produce a seed.



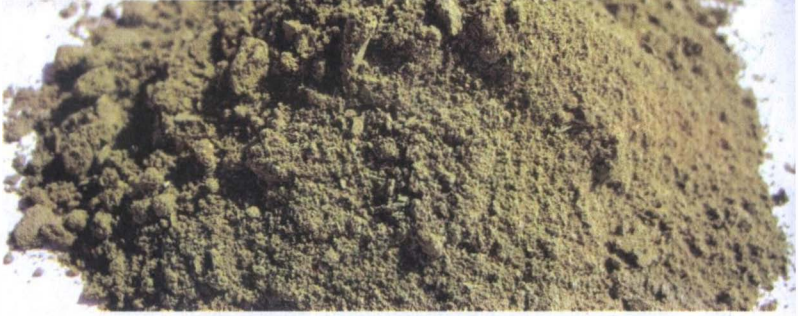
Why do some leaves have bumps?

You might have noticed that some leaves that are spotted with little bumps. It almost looks as though the leaves have chicken pox! These bumps are called galls, and they are made when an insect lays eggs on the leaf.

Galls swell up around the eggs, and when the eggs hatch, the baby insects use the inside of the gall for food. The shape of the gall depends on the type of insect responsible for it.

Leaf or Root?

The onion is actually a bulb, or very big bud. The bulb comprises fleshy layers of modified leaves, surrounded by a papery outer layer. Onions are used in many dishes. They have a distinctive, strong flavour and pungent odour, which is mellowed by cooking. Onions have medicinal uses too.



Henna Powder

Why is henna so important?

Henna is a flowering plant. Henna has many traditional and commercial uses.

The most common one is as a dye for hair, skin, and fingernails, and as a dye and preservative for leather and cloth. Henna has medical uses too. It is an antifungal, used to treat ringworm, and Athlete's foot. It soothes eczema, and is applied to bruises, burns and wounds for its cooling effect.

On the Indian subcontinent, henna is referred to variously as mendee or mehndi in North India, Pakistan and Bangladesh. In North Africa and the Middle East, the Arabic word hinna or kina is used. In the Tamil speaking parts of South India, Singapore, Malaysia, and Sri Lanka, henna is called 'marudhani'.

Curious Fact

Cricket bats and Willow trees

The willow tree is usually found on riverbanks. Its wood is used in many ways - to make artificial limbs, wooden shoes, and cricket bats! The bat is traditionally made from the Cricket-bat Willow, treated with linseed oil. This wood is used as it is very light, yet very tough, and shock-resistant. It will not dent or splinter on being slashed to hit a six.

Do plants sleep?

In a sense, all plants sleep, when the sun goes down, and there is no light.

Photosynthesis cannot take place when it is dark, and the plants cannot make food. They close down the stomata, and only respiration continues.

Some species of Calathea, Ctenanthe and especially Maranta, fold their leaves, or roll their leaves up at night.

Calathea

Lightest Wood!

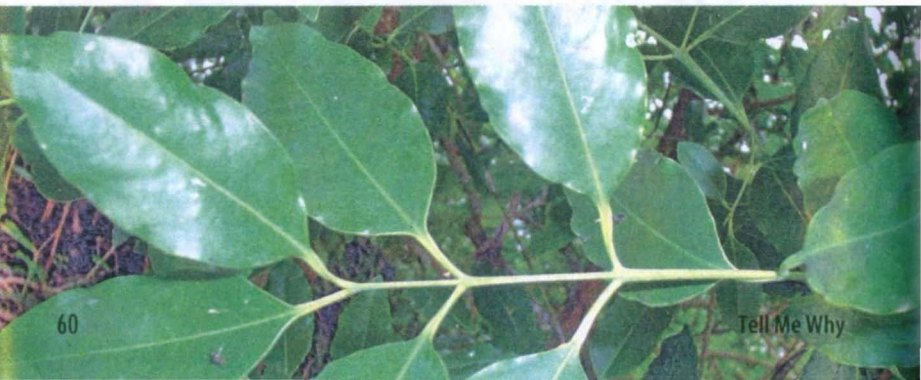
Balsa trees are native to Brazil. Balsa wood weighs only half as much as cork. The balsa tree, grows quickly, reaching a height of 21 metres in only seven years. Balsa wood was used for building rafts, and making drawing equipments.

What are the uses of sandal?

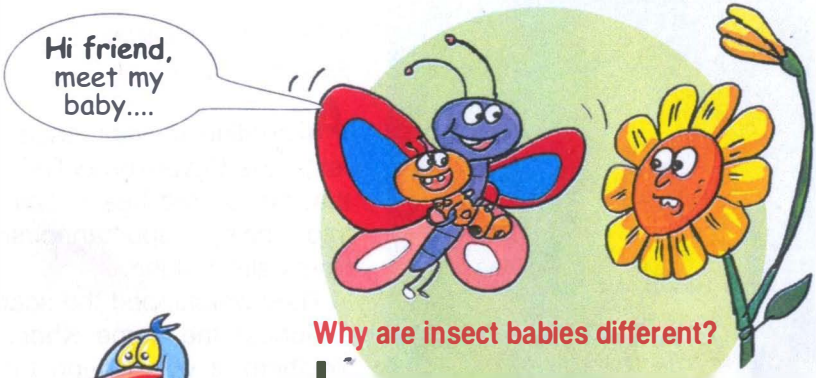
Don't you just love the fragrance of incense sticks? Incense sticks contain a substance which comes from the fragrant wood of the sandal tree.

Sandal is used as fragrance in perfume and incense, and for woodworking. Some temples have been built with sandalwood in India, and these retain the aroma for centuries. Jewellery boxes, fans, and ornate carvings continue to be made in many parts of Asia, especially in India, using sandalwood.

Sandalwood oil is good for the skin, since it has antiseptic properties that prevent infections. Sandalwood essential oil, which is very expensive in its pure form, is used primarily for ayurvedic medicinal purposes. In alternative medicine, sandalwood is considered to bring one closer to the divine.



Sandal Leaf



Why are insect babies different?

Insect babies sometimes look very different from their parents. Caterpillars are the babies of moths as well as butterflies. Maggots are the babies of flies and grubs are the babies of beetles and wasps.

These are also called larvae. The larvae will undergo several changes in different stages before becoming the adult insect. Some insect babies do look like their parents though. They are known as nymphs. Grasshoppers are good examples of these. They don't have wings like their parents at first, but will develop them as they grow.

Many insect babies have the same colour as the leaves they gobble busily, so that their enemies cannot see them. Others have sharp spines for protection, while still others have fierce looking spots on their bodies to scare away their enemies.

Termite Power

Termites are very small, but did you know that they have the tiniest of all animals, called protozoa, living in their digestive system? Termites feed on wood, but cannot digest it by themselves. It is a protozoa that begins the process of digestion for them.

Scarab Beetle

Why were scarab beetles sacred to Egyptians?

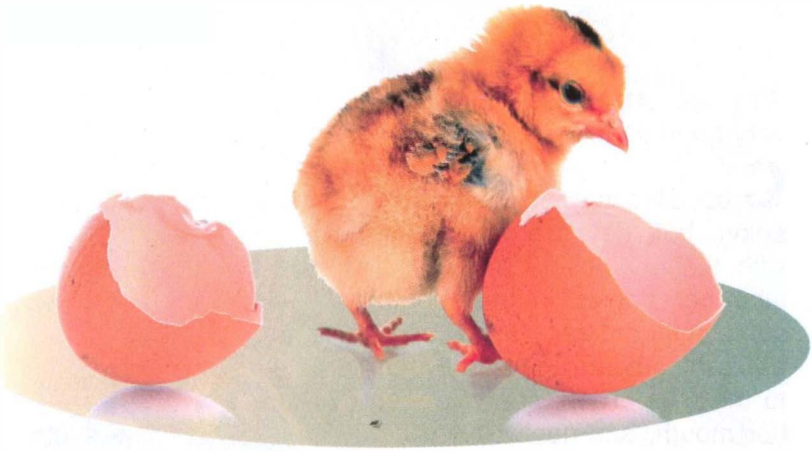
According to their ancient texts, the Egyptians believed that the scarab beetle came into being spontaneously from balls of dung.

They worshipped the scarab under the name Khepri. To them, it was Khepri that pushed the sun across the sky.

The scarab beetle became an Egyptian symbol for rebirth, and the ability to be reborn. Each day the sun disappeared, always to rise again, and be reborn the following day.

Hence, the scarab became an important symbol of creation, rebirth and everlasting life in ancient Egypt. Small jars and coffins containing dried scarabs were often placed in Egyptian tombs as part of their ancient funeral rites to ensure eternal life.

The sacred 'sun' scarab, giving light and warmth, became a popular symbol in everyday life.



Flying Spiders

Did you know that some spiders use the silk of their cobwebs to 'fly'? This is called 'ballooning'. Most small spiders seeking new territory will cast a thread of silk into the air, and 'parachute' to a new location. Before casting out a silk thread, and swooping through the air, a spider checks the weather just as a human pilot might do.

Why does a newly hatched chick peck any round object that contrast with the background?

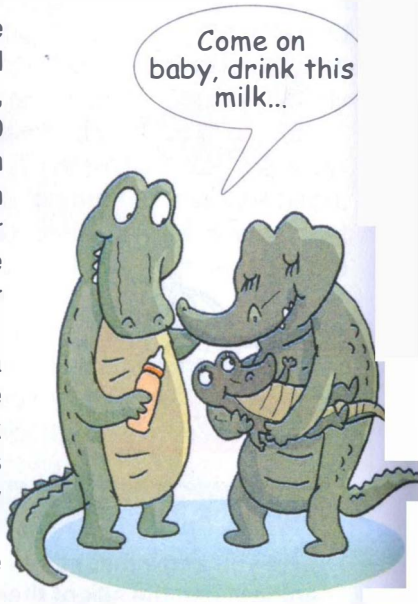
A newly hatched chick has to find its own food- and its food consists of seeds and drops of water that collect on the ground. Since the chick has not learnt to distinguish between seeds, drops of water, and other round shiny objects, it has a tendency to peck at any round bright shiny surfaces that contrasts with the ground. This behaviour is called 'instinctive behaviour,' and it will eventually guide the chick to the food it needs.

Why are crocodiles considered very good parents?

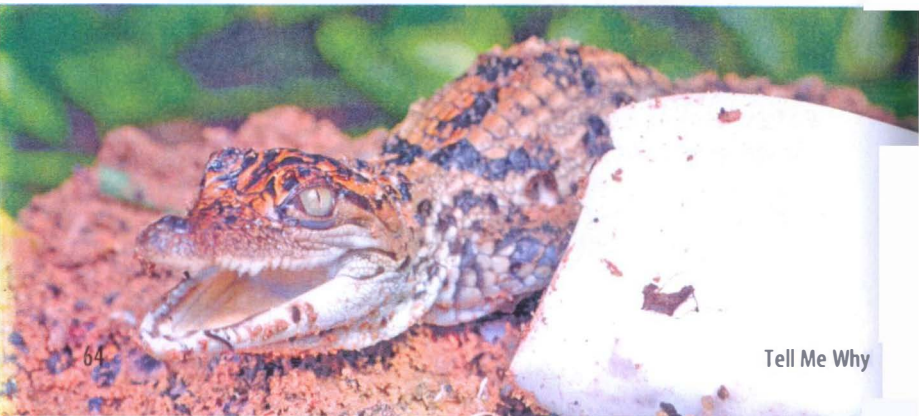
Crocodiles may look very frightening, but they are very gentle with their babies. A female will take her babies in her mouth, sometimes as many as 18 or 20 babies together, and carry them to the river. Then, she will open her mouth, and gently move her head from side to side, so that the water washes the sand from her babies' bodies.

The male crocodile is also a good parent. In fact, he helps the eggs to hatch by rolling them back and forth in his mouth. This cracks the shell, and allows the baby crocodile to wriggle out unhurt.

One will appreciate the care with which the father crocodile handles the eggs in his mouth to ensure that the babies are unhurt.



Baby Crocodile



Devil's Tower

How did the Devil's Tower get its name?

Devil's Tower, rising 264 metres over low hills and the Belle Fourche River, is one of United State's distinctive natural landmarks.

The formation of Devil's Tower is a mystery. Some geologists believe that the tower was created when molten rock pushed into surrounding sedimentary rocks, and then solidified. Others claim that it is the remnant of a volcano's neck.

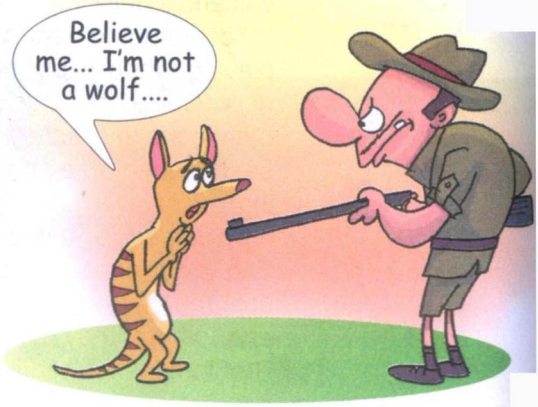
According to legend, seven sisters were playing when a big bear chased them. The girls climbed on a rock which grew like a tree, putting the girls safely out of reach. The angry bear jumped up against the sides of the growing tower and left deep claw marks, which may be seen to this day up on the rock walls. The tower continued to soar towards the sky until the girls were pushed up into the heavens, where they became seven stars. The Red Indians named it 'Devil's Tower'.

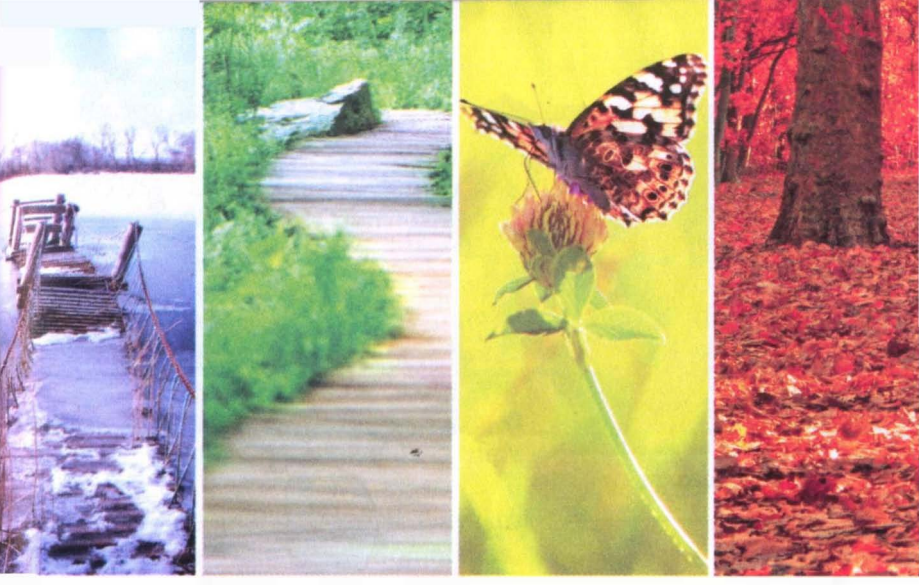
Tasmanian Wolf

Why did the Tasmanian wolf become extinct?

The Tasmanian wolf is believed to have been extinct since 1936. Despite its appearance and its popular name, this animal was not in fact a species of wolf, nor was it a dog, which it also resembled.

It was actually a marsupial - the largest carnivorous marsupial in recent times - and was closely related to the kangaroo, and the wombat. Man is solely responsible for the extinction of the Tasmanian wolf. In the 19th century, when Tasmania encouraged agriculture, the Tasmanian wolf was considered a threat to livestock. So, hunters were paid to hunt and kill the animal, and it was soon hunted to extinction in Tasmania.





Why is it believed that life developed over and over on the Earth?

It is believed that even after life began; it was destroyed many times by comets or asteroids striking the Earth.

As a result, life may have started from the beginning over and over again many times, until finally; conditions on Earth became more stable.

So, the development of different forms of life was not a smooth, continuous process, but one marked by many breaks, and many new beginnings.

Curious Fact

The Smartest!

The cleverest dinosaur was quite a small one. It was called Troodon. However, in spite of its intelligence, it too became extinct.

Dinosaurs

How did dinosaurs evolve?

Dinosaurs evolved from reptiles. However, they were different from reptiles in that their body was supported by their legs.

Early reptiles had legs that stuck out sideways from their bodies. They dragged their bodies along the ground, and raised it only for brief periods. The dinosaur's body, on the other hand, was raised off the ground, and supported by legs that were beneath the body.

Cruel Dance

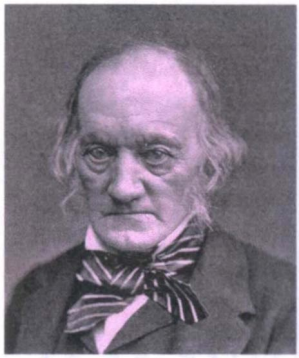
For more than 400 years, the Asiatic black, and sloth bears have been a target for human exploitation. A nomadic tribe began to train the captured sloth bears to dance.
With no anesthesia, a red hot poker would be driven through the muzzle of the bear, often at the age of just six months. A rope would then be pulled through the painful piercing, and left in place permanently, and the bears were trained to dance for Man's entertainment.

What does the term dinosaur mean?

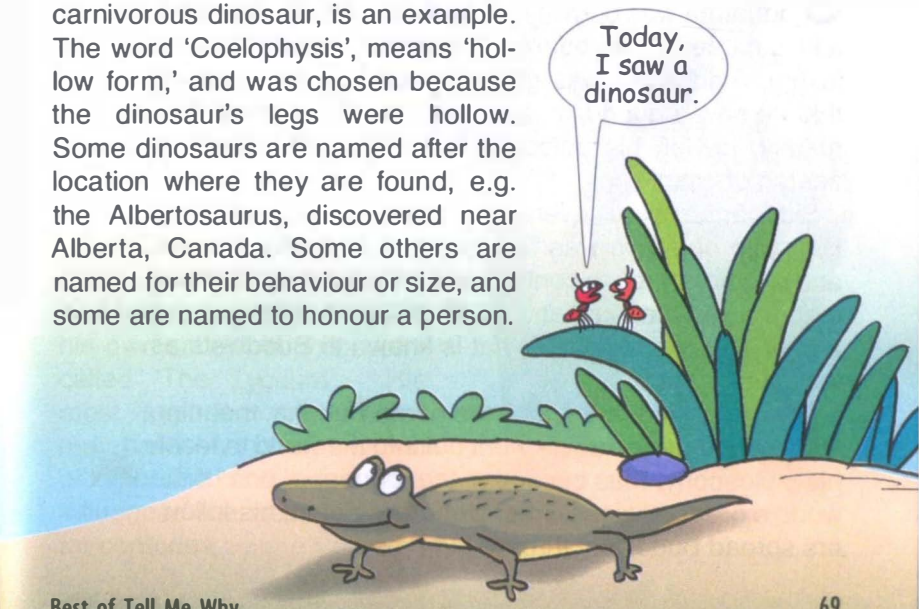
In 1841, Sir Richard Owen coined the word 'dinosaur' to identify the fossils of extinct reptiles. It traces its origins to the Greek words 'deinos', meaning 'terrible,' or 'fearfully great', and 'sauros', meaning 'lizard'.

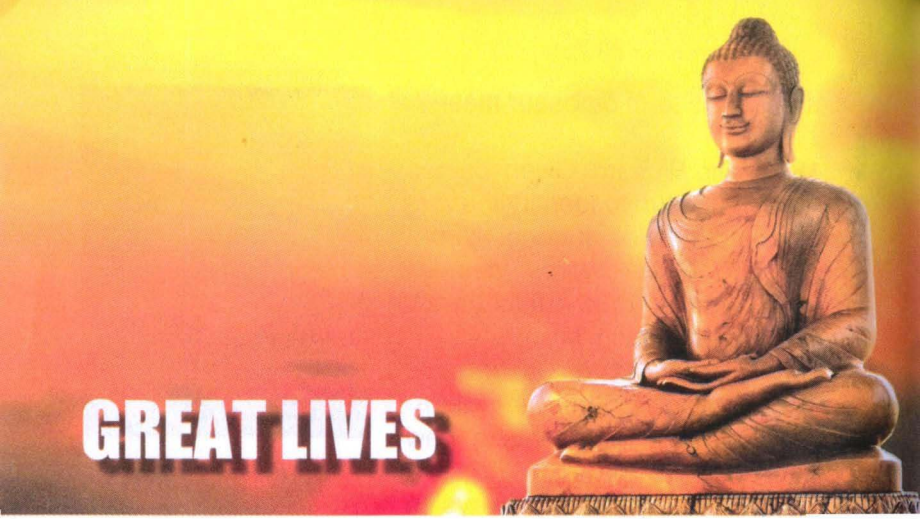
Newly discovered dinosaurs are named by the discoverer who determines whether it represents a new species.

There are many different ways to choose a dinosaur name. Sometimes, the dinosaur is given a name that describes something unusual about its body, head, or feet. Coelophysis, a carnivorous dinosaur, is an example. The word 'Coelophysis', means 'hollow form,' and was chosen because the dinosaur's legs were hollow. Some dinosaurs are named after the location where they are found, e.g. the Albertosaurus, discovered near Alberta, Canada. Some others are named for their behaviour or size, and some are named to honour a person.



Sir Richard Owen





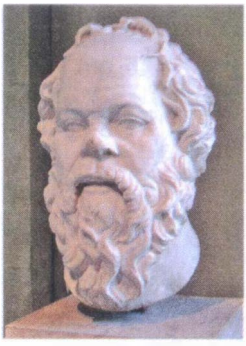
How did Siddhartha, the prince of Kapilavastu, earn a place in history?

Siddhartha was born in Kapilavastu. He was the son of a king named Suddhodana. Though he lived in the lap of luxury, Siddhartha was greatly moved by the suffering that he saw around him, and the pain of existence. Ultimately, he left his palace and family, and set out in search of 'truth'.

Siddhartha spent several years fasting and meditating. His main objective was to overcome all bodily desires, and to gain complete control over his mind. Legends say that one night in May, about 528 BC, while sitting under a pipal tree, he received what is known to Buddhists as 'enlightenment.'

After this, Siddhartha took the name Buddha, meaning 'the enlightened one'. He went out into the world to teach his philosophy, thus becoming the founder of one of the world's great religions. After Buddha's death, his followers spread Buddhism throughout Asia.

Who were the three great philosophers who shaped the ancient world?



Socrates

Socrates, Plato, and Aristotle were three great Greek philosophers whose ideas shaped the ancient world. Socrates taught Plato, and Plato taught Aristotle.

Socrates was the first to make a clear distinction between the body and the soul. He said that the soul was actually more important than the body. He had an enquiring mind, and taught by asking questions about life. Some people did not like his teachings, and this noble man was finally put to death. His teachings were written down by Plato, his student.

Plato founded a school of philosophy called the Academy, which is believed to be the first university in the western world. Plato's most important work was 'The Republic,' in which he explains his philosophy.

Aristotle was a student of Plato, and studied at the Academy. He later founded his own school of philosophy called 'The Lyceum'. His most important contribution may have been his invention of logic, and his theories have influenced the western world for centuries.

Plato and Aristotle

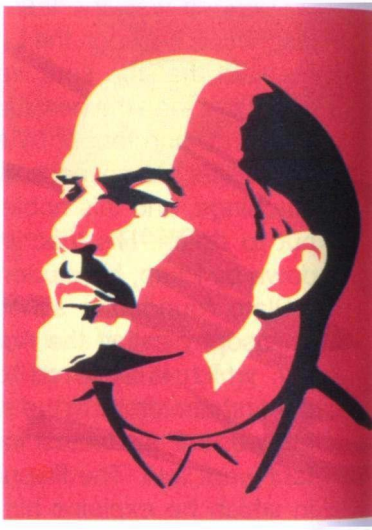
What are the contributions of Lenin?

Vladimir Lenin, born in 1870 in Russia, was the man who established a powerful communist government in Russia when the Tsarist Empire collapsed in 1917.

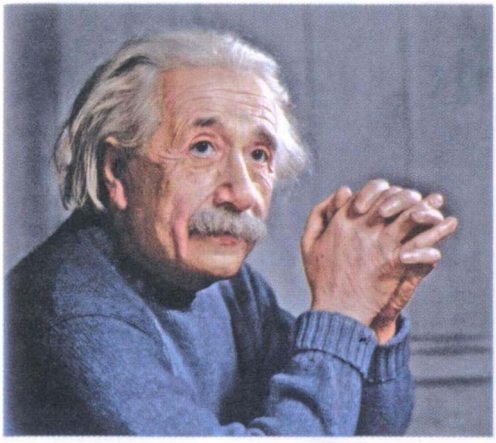
In the 1890's, Lenin and others dedicated themselves to overthowing the monarchy of the tsars. Although it was the largest empire in the world, ruled by the autocratic tsars, Russia remained a backward country, untouched by social improvements, or industrial developments.

The 'Bolsheviks' were the most violent and organised among the socialist groups in Russia, that had vehemently opposed the tsars. The Bolsheviks seized power on November 7th, 1917 establishing a council of people's commissars to govern Russia.

Lenin, who had been living in Switzerland when the revolution broke out, became the head of the council, and the first premier of post-imperial Russia. Lenin had the Tsar Nicholas II and his family executed. Finally, the Union of Soviet Socialist Republics (USSR) was established. Lenin died on January 21st, 1924.



Vladimir Lenin



Albert Einstein

Why is Einstein considered as one of the world's most brilliant physicists?

Albert Einstein was born in Germany, on March 14th, 1879. In 1901, he got a job in the Swiss Patent Office.

In 1905, he began publishing the components of his Special Theory of Relativity, in which he demonstrated that time was relative to the speed at which the observer was travelling.

The essence of Einstein's Special Theory of Relativity was that if matter is converted into energy, then energy released can be shown in the simple formula $E=mc^2$ where c represents the velocity of light, E the energy, and m the mass.

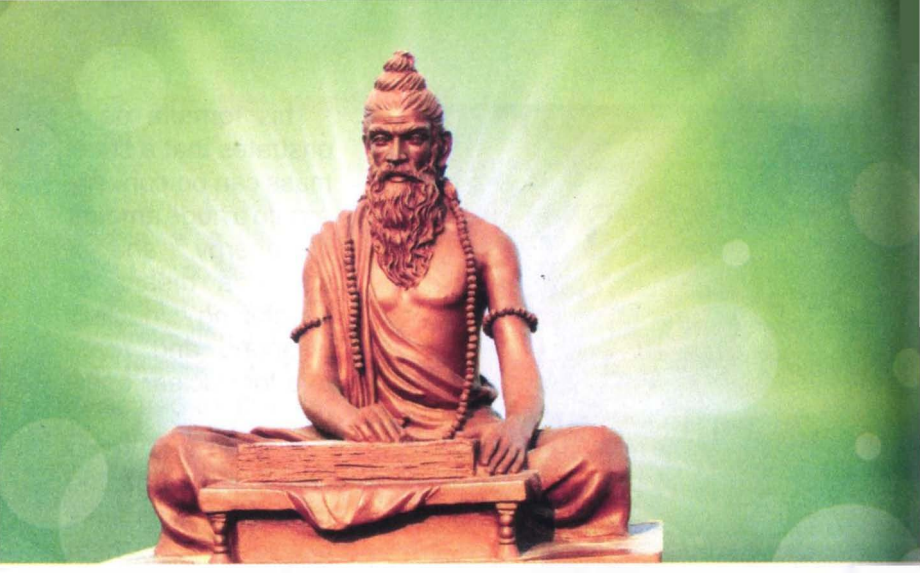
This formula demonstrates that a small mass can be converted into a huge amount of energy, and it shows a means of developing nuclear weapons and reactors for nuclear energy.

In a nuclear reaction, he suggested that huge quantities of light and heat could go on being created, with the loss of only a very small mass.

Einstein received the Nobel Prize for Physics in 1921, for his work on the Photoelectric effect.

When the Nazis came to power in Germany, Einstein, being a Jew, had to immigrate to the US.

Einstein's later works were complex, so they remained untouched for several years after his death in 1955.



Statue of Sushruta

Why is Sushruta called the 'father of surgery?'

Sushruta, who lived in the 6th century BC in India, was the first surgeon in the world.

In his book 'Sushruta Samhita', he describes over 120 surgical instruments, 300 surgical procedures, and 8 types of surgeries. He is the pioneer of plastic surgery and cosmetic surgery. His book contains the first known description of several surgeries.

Sushruta suggested that patients should be kept under sedation with wine, so that they are relaxed during an operation. His emphasis on personal cleanliness and sterilisation of instruments are followed by surgeons till today.

His numerous contributions to the science and art of surgery have given him the title 'Father of Surgery.'

Why is Swami Vivekananda famous?

Swami Vivekananda was one of the most influential spiritual leaders of India. He was the chief disciple of Sri Ramakrishna Paramahamsa. Swami Vivekananda, whose real name was Narendranath Dutta, was born on January 12th, 1863 in Kolkatta.

After passing his matriculation, Narendra studied philosophy. Doubts regarding the existence of God arose in his mind. In his quest to know the truth, Narendra met Sri Ramakrishna Paramahamsa, who became his guru. After the passing away of his guru, Narendra founded the Ramakrishna Math, and vowed to lead the life of a monk.

In 1890, Narendra acquired the name of Swami Vivekananda. In 1893, he attended the Conference of World Religions in Chicago, and captivated audiences in America with his masterlyspeech. SwamiVivekananda established The Sri Ramakrishna Mission in 1897, aiming to inspire self confidence among Indians. Vivekananda died on July 4th, 1902.

Swami Vivekananda

Helen Keller

Why is Helen Keller considered as a great inspiration to differently abled persons?

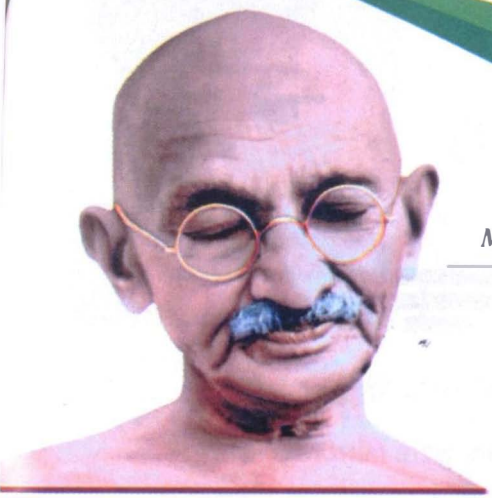
Helen Keller is a woman who lost both her vision and hearing at the age of 19 months, but successfully fought against the odds, and became an exceptional leader, once she saw the potential of her own mind.

Helen Keller was born as a healthy child on June 27th, 1880, in the US. Perhaps, it was scarlet fever that struck the infant Helen Keller, and left her deaf and blind before she learned to speak.

Anne Sullivan became Helen's teacher in 1887, and was always with her until her own death in 1936. Helen quickly learnt to read and write French, German, Greek, and Latin in Braille.

The most popular of her works is 'The Story of My Life', an autobiography of her early years, in more than 50 languages. Helen also did research, gave speeches, and helped raise money for many organisations for the blind by travelling around the world.

Helen also inspired many works of art, including two Oscar-winning movies. She died in 1968.



Mahatma Gandhi

Why is Mahatma Gandhi considered as an inspiring person, who shaped world history?

Mahatma Gandhi stands out among the great men of the world as the symbol of nonviolent resistance to political and social repression.

Mohandas Karamchand Gandhi, father of our nation, was born on October 2nd, 1869 at Porbandar in Gujarat. He studied law in England, and practiced in Mumbai from1891 to 1893, and in South Africa until 1914. In South Africa, Gandhi worked to improve the living conditions of the Indians.

On his return to India in 1915, Gandhiji joined the nationalist movement for Indian independence. He was very sympathetic to the lower classes of people, and chose to wear simple clothes. Soon he became the leader of a movement that attracted millions, for the struggle for freedom. Gandhiji was a strong advocate of nonviolence.

India got freedom on August 15th, 1947. But before Gandhiji could celebrate the culmination of his life's work for long, he was assassinated on January 30th, 1948.

However, the use of nonviolent political protests, which he pioneered, continued to be a model for other great leaders.

INVENTIONS

How, and when, were mirrors invented?

The history of mirrors dates back to ancient times when mankind first saw reflections in a pond or river, and considered it magic.

At first, polished stone or metal was used in the early man-made mirrors. Later, glass was used in combination with metals like tin, mercury, and lead. Today, combining glass and metal is still the method used in almost all modern mirrors.

The two-way mirror was originally called the 'transparent mirror'. There is a silver coating on the glass of a two-way mirror, which, when applied to the back of the glass, renders the glass opaque and reflective on its face under ordinary light conditions.

Douglas Engelbart

The Colossus

The colossus was a giant computer built in the British Secret Service during World War II. It was built by an engineer called Tommy Flowers, and used vacuum tubes to perform the calculations. Colossus computers were used by the British to break the German codes.

Why is it said that Douglas Engelbart was an unsung hero in the history of computers?

Douglas Carl Engelbart was an American engineer and inventor, and an early computer and Internet pioneer. He is best known for his work on the challenges of human – computer interaction.

Douglas Engelbart changed the way computers worked, from specialized machinery that only a trained scientist could use, to a user-friendly tool that almost anyone can use. He invented, and contributed to several interactive, user-friendly devices including the computer 'mouse', which revolutionised the way we use computers. So, he was regarded as one of the prominent contributors to the massive development of computers. Engelbart died in 2013.

What were the major breakthroughs in the development of language and reading?

The Ancient Romans gave us most of our modern languages. Their language was Latin, the basis for most of the Western tongues. The actual shapes of the letters we use in print today are descended from the shapes of the early Roman letters. Then, writing came to another standstill.

The alphabet had been formalized, standard shapes for all the letters had been adopted, and that was it. Learning to read was a luxury, because it was so difficult to obtain reading material. A new invention was needed - a way to make many copies easily and cheaply. This happened in 1440, and it marked man's first use of movable types.

STAR FACT

Typewritten

Mark Twain was the first author to submit a typewritten manuscript to his publisher.

Sholes Typewriter

Who invented the first typewriter?

Christopher Latham Sholes invented the first practical modern typewriter with his partners Soule and Glidden in 1866. The invention was patented in 1868, and was manufactured by Remington Arms Company in 1873.

Before the computer, the typewriter may have been the most significant everyday business tool. After five years, and dozens of experiments later, Sholes and his associates produced an improved model, similar to today's typewriters. The type-bar system, and the universal keyboard were the machine's novelty, but the keys jammed easily. To solve the jamming problem, another business associate, James Densmore, suggested splitting up keys for letters commonly used together to slow down typing. Thus the 'QWERTY' keyboard was formed.

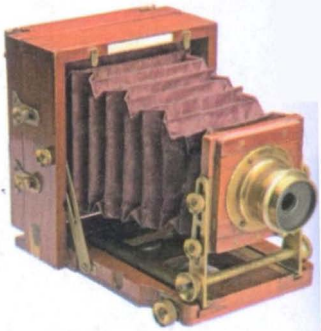
The first electric typewriter was the Blickensderfer. In 1944, IBM designed the first typewriter with proportional spacing.

Which was the first camera to use a lens?

In the 16th century, Geronimo Cardano, the Italian physician, mathematician, and astrologer, used a convex lens in a camera and, in a sense, started the photographic industry.

Photography, as we know it, actually began in 1816 when Joseph Niepce, a French researcher, captured an image on paper that had been sensitized with silver chloride.

Today, with the advent of digital cameras, photographic film has lost its importance, but the art of photography has reached new heights.



Vintage Camera

Polaroid Camera

In 1943, a three-year-old girl asked a very simple question: Why couldn't she look at a photograph of herself as soon as it was taken? Edwin Land, her father invented the Polaroid camera in 1947, that would allow her to do just that.

Did Thomas Edison really invent the light bulb?

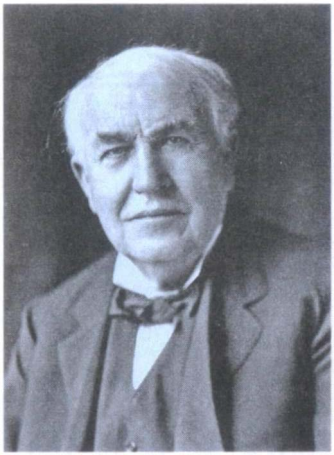
Edison didn't 'invent' the light bulb, but rather, he improved upon a 50-year-old idea. Henry Woodward of Toronto, along with Matthew Evans, patented a light bulb in 1875. Unfortunately, the two entrepreneurs could not raise the finance to commercialise their invention.

The enterprising American, Thomas Edison, who had been working on the same idea, bought the rights to their patent. Edison had the backing of a syndicate of industrial interests with $50,000 to invest.

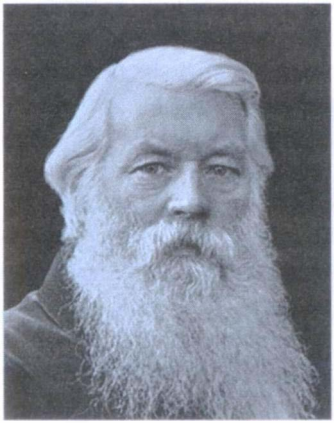
Using lower current, a small carbonized filament, and an improved vacuum inside the globe, Edison successfully demonstrated the light bulb in 1879, and made history.

Sir Humphrey Davy of England invented the first electric carbon arc lamp in 1801. A.E. Becquerel of France theorized about the fluorescent lamp in 1857.

Sir Joseph Swan of England, and Thomas Edison both invented the first electric incandescent lamps around the 1870s.



Thomas Edison



Joseph Swan

Who invented the gramophone?

Early attempts to design a music- playing gadget began in 1877, when Thomas Edison invented his tin-foil phonograph. The sound quality on the phonograph was bad, and each recording lasted just for one only play.

On November 8th 1887, Emile Berliner patented a successful system of sound recording. The first records were made of glass, later zinc, and eventually, plastic. A spiral groove with sound information was etched into the flat record. The record was rotated on the gramophone.The 'arm' of the gramophone held a needle that read the grooves in the record by vibration, and transmitted the information to the gramophone speaker.

Berliner's discs (records) were the first sound recordings that could be mass-produced by creating master recordings from which moulds were made. From each mould, hundreds of discs were pressed.

Emile Berliner founded 'The Gramophone Company' to mass manufacture his sound discs (records) and the gramophone that played them.

Early Bicycle

Who invented the bicycle?

Some history books will state that Pierre and Ernest Michaux, the French father and son team of carriage-makers, invented the first bicycle during the 1860s.

Historians now disagree with this, and there is evidence that the bicycle is older than that. However, historians do agree that Ernest Michaux did invent the modern bicycle pedal and cranks in 1861.

The German Baron Karl Drais von Sauerbrun invented the 'Laufmaschine' -a bicycle made of wood, with no pedals. Sauerbrun's bicycle was first exhibited in Paris on April 6th, 1818. Kirkpatrick Macmillan is generally credited with inventing the rear-wheel driven bicycle.

Who invented the first toothbrush?

The Ancient Chinese made toothbrushes with bristles picked from the neck hair of Siberian wild boars! Stick-like toothbrushes have also been found in the pyramids of ancient Egypt. French dentists were the first Europeans to promote the use of toothbrushes in 17th century.

William Addis of Clerkenwald, England, created the first mass-produced toothbrush. It's hard to believe, but most Americans did not brush their teeth until army soldiers brought their enforced habits of tooth brushing back home after World War II.

After the DuPont Company invented nylon in 1935, toothbrushes appeared with nylon bristles. The first real electric toothbrush was produced in 1939, and developed in Switzerland.

A Huge Offer

After the death of the first president of Israel in 1952, the Israeli government offered the post of second president to the great scientist, Albert Einstein. But he declined the offer.

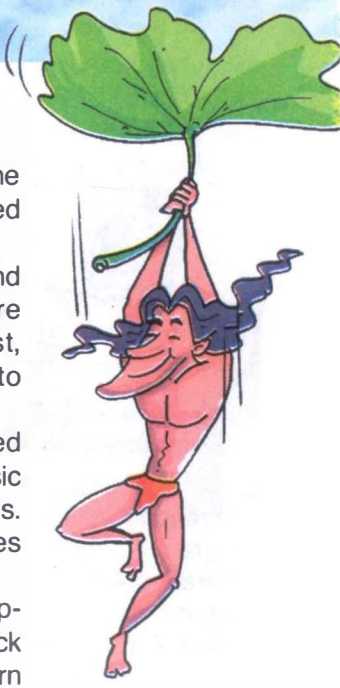
Who invented the parachute?

The word parachute comes from the French words 'para' and 'chute'. Used together, they mean 'to shield a fall'.

Parachutes had been first imagined and sketched by Leonardo da Vinci. They were reinvented in 1783 by a French chemist, Louis Lenormand, who also was the first to make a parachute jump.

The material of the parachute has changed a lot since it was invented. But the basic design was not changed until the 1930s. Originally made from canvas, parachutes were later fashioned from silk.

Today, parachutes are made from 'rip-stop' nylon that is woven with extra-thick thread at regular intervals, creating a pattern of small squares. This structure keeps small tears from spreading.



What is artillery?

The word artillery is used in a wide sense, though its prime meaning is any engine used for the discharge of large projectiles in war. Soldiers who operate such weapons, and fight in such regiments are called 'gunners'. Weapons under 'modern artillery' include cannon, artillery such as the howitzer, mortar, and field gun and rocket artillery.

In the 19th century, artillery made the decisive split between lighter and more mobile pieces that stayed with the troops, and much larger weapons which were deployed to cause heavy damage to the enemy.

The 1999 Kargil war with Pakistan saw the extensive use of heavy artillery especially the Bofors L-39 guns by the Indian Army.

Grenadier

Grenadier is a French term for 'grenade man'. Grenadiers, therefore, were soldiers whose main job was to throw grenades.

What does the term mortar mean?

A mortar is a muzzle loading indirect fire weapon that fires shells at low speed, short ranges, and high-arcing ballistic trajectories.

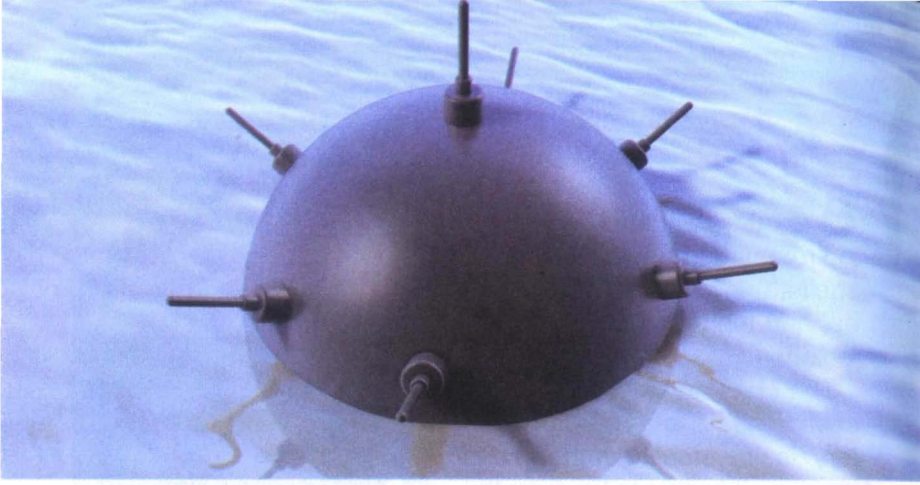
The chief advantage a mortar section has over an artillery battery is its small numbers and mobility. It is able to fire from the protection of a trench.

A mortar is simple, and easy to operate. It can be carried by one or more men, or transported in a vehicle. An infantry mortar can also be mounted and fired from a mortar-carrier built for this purpose.

German Mortar used in WWII

Traffic Lights

The world's first traffic lights were installed near London's House of Commons in 1868. J.P. Knight invented them. William Ghiglieri of San Francisco, California, patented perhaps the first automatic traffic signal using coloured red and green lights in 1917. Ghiglieri's traffic signal had the option of being either manual, or automatic.
In 1920, William Potts, a Detroit policeman, invented an automatic overhanging electric traffic light system with red, green, and yellow colours.



Naval Mine

What are the features of a naval mine?

A naval mine is a self-contained explosive device placed in water to destroy ships or submarines. They are deposited, and left to wait until they are triggered by contact with an enemy ship. Naval mines can be used offensively, to hamper enemy ships or lock them into a harbour; or defensively, to protect friendly ships, and create 'safe' zones.

Mines can be laid in many ways: by purpose-built mine-layers, submarines, or airplanes and even by dropping them into a harbour by hand. Their flexibility and cost-effectiveness make mines attractive weapons in asymmetric warfare.

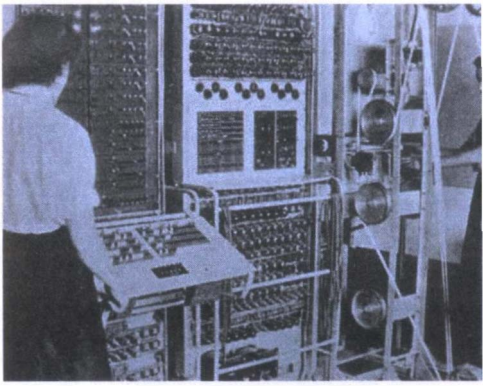
A single mine along a shipping route can stop shipping for days until the entire area is swept. International law requires nations to declare when they mine an area, in order to make it easier for civil shipping to avoid the mines.

What are the characteristics of first generation computers?

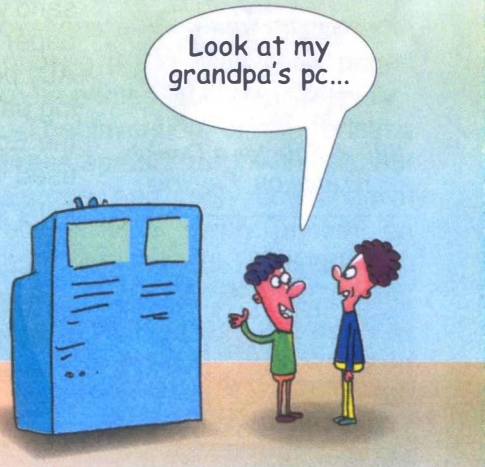
In first generation computers(1945-1956) the operating instructions or programmes were specifically built for the task for which the computer was manufactured.

They relied on machine language to perform operations, and they could only solve one problem at a time. The input was based on punched cards and paper tape, and the output was displayed on printouts. It was very difficult to programme these computers, and they were difficult to repair when something went wrong.

Data was stored in vacuum tubes and magnetic drums. First generation computers were often enormous, taking up entire rooms. They were very expensive to operate, and in addition to using a great deal of electricity, generated a lot of heat, which was often the cause of malfunctions.



Colossus Mark II Computer of 1944



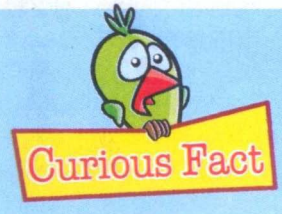
Bill of Sale for a Donkey, Written on Papyrus

Why did the invention of paper change the world?

Since the invention of writing, people had been trying to come up with something to write on that was easy and cheap to make. Paper seems to have been invented around 100 BC in China.

A government official in China named Ts'ai Lun was the first to start a paper-making industry. Ts'ai Lun seems to have made his paper by mixing finely chopped mulberry bark and hemp rags with water, mashing it flat, and then pressing out the water, and letting it dry in the sun.

Even after people in China began to use paper, it took another thousand years before people were using paper all over Eurasia. By the 400's AD, people in India were also making paper. Paper gets its name from the Egyptian papyrus plant that was used to make paper-like sheets as early as 2300 BC.



Bullet

The word 'Bullet' is derived from the French word 'boulette' which means 'little ball'.

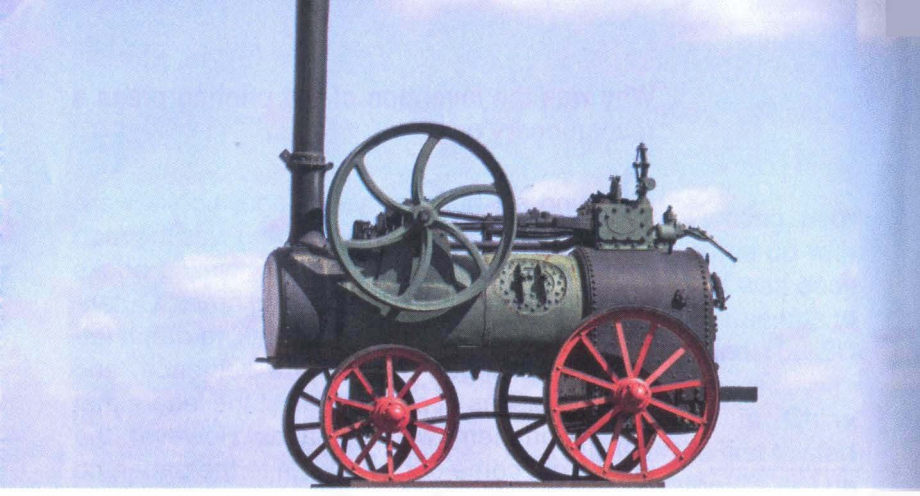
Why was the invention of the printing press a revolutionary one?

Around six hundred years ago, books were handwritten. Johannes Gutenberg was the man who saved people the trouble of writing books by hand, by inventing the printing press. Gutenberg started his invention by making metal letters. He arranged them into a sentence, and pressed pieces of paper against the letters that had ink on them, with his hands. However, the ink did not come out evenly on to the paper, so he decided to make a press.

Gutenberg took some existing technologies and some of his own inventions to come up with the printing press in the year 1450. One key idea he came up with was moveable type. Rather than use wooden blocks to press ink onto paper, Gutenberg used moveable metal pieces to quickly create pages. He made innovations all the way through the printing process enabling pages to be printed much more rapidly.

The invention of the printing press spread quickly throughout Europe, and soon thousands of books were being printed on printing presses. The printing press made books cheaper and more plentiful. It made it possible for even middle class people to buy books, and spread knowledge and education like never before.

Printing Press of early days



Old Steam Engine

Rockets

The first rockets originated in China around AD 1330. It has an arrowhead, arrow barrel, arrow feather, and gunpowder tube. The gunpowder tubes were mostly made from bamboo.

How did the steam engine change the world?

The steam engine is an example of a heat engine. Heat engines are those that convert heat energy into mechanical work. The steam engine was perfected by James Watt.

The steam engine was a totally portable source of power, which could operate heavy machinery. As a result, there was a boom in factories and industries flourished.

The steam engine made train travel much quicker, and made the transport of raw materials easier as well.

George Stephenson played a key role in producing the first commercially used steam trains. The steam engine is considered to be the engine that drove the Industrial Revolution.

Who developed the idea of computing?

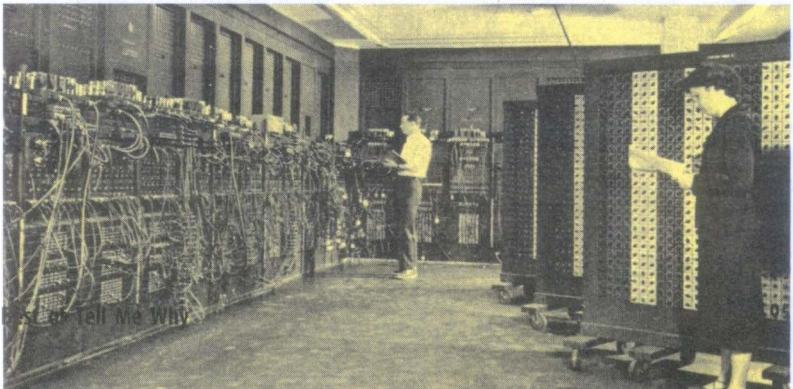
The history of computers began with simple adding devices. The abacus, an ancient Chinese adding machine, is one of the original computing machines, used as early as 400 BC.

Famous mathematicians such as Leonardo da Vinci and Blaise Pascal invented more sophisticated calculators, using gears and punch cards.

Charles Babbage was a British mathematician, who is often called 'The Father of Computing'. He designed the first automatic computing engines. He designed the first computer, a machine he called 'the difference engine', in 1822. It was the size of a house, could store a programme, and was powered by steam. Babbage invented computers, but failed to build them.

ENIAC, the first electronic general purpose computer capable of solving a full range of computing problems, was designed for the US Army at the beginning of this age. ENIAC was conceived and designed by John Mauchly and J. Presper Eckert in 1946.

ENIAC



Concorde

What is a Concorde ?

The Concorde was the world's first supersonic commercial passenger aircraft. It was developed jointly by Britain and France during the 1960s and 1970s, and could fly at a speed twice the speed of sound. It could fly high through the atmosphere on the edge of space at an altitude of 18 km. The passengers did not feel any sensation of speed inside the aircraft. The Concorde could fly over great distances without requiring in-flight refueling. But it was economically unviable, and Concorde flights were stopped on 24th October 2003.

First Train in India

The first train in India ran between Bori bunder in Mumbai, and Thane, on April 16th, 1853. The distance was only 34 kilometres. The train had fourteen coaches, and 400 passengers. It left Bori bunder at 3:35pm, and reached Thane in 57 minutes.

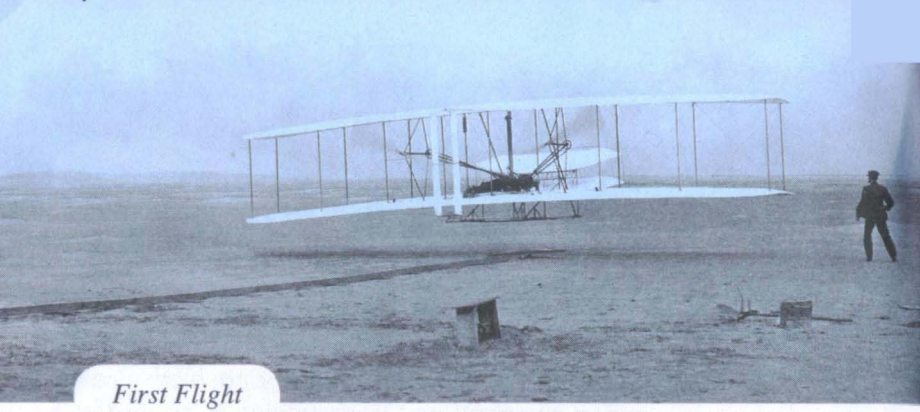
What is meant by a hovercraft?

A hovercraft, though very often mistaken for a ship, is actually much more than an ordinary ship. Though built to travel over water, it can travel over land as well.

A hovercraft rests on water or land when it is not running. Underneath the craft, there are special motors which create a cushion of air when switched on. This cushion is so strong that it lifts the hovercraft right off the water or ground. It is then propelled forward by other engines. Hovercrafts are much faster than ordinary boats, as they move over water, rather than through water. They are used for a variety of uses such as services across short sea routes, and carrying goods and passengers.

Hovercrafts built for naval purposes are equipped with missiles. The credit for having developed the hovercraft goes to the British engineer, Sir Christopher Cockerell.

Hovercraft



First Flight

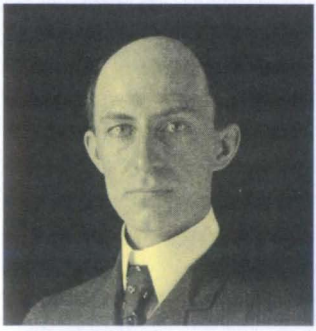
How did Man's dream of flight come true?

Man has always dreamt of being able to fly like a bird, and many attempts were made to fly using artificial wings- but all of them failed. Hot air balloons, invented in the 18th century, did make it possible for Man to soar up into the clouds, but left them totally at the mercy of winds.

Gliders came next, but it was the invention of the four stroke engine that made it possible for an aircraft to fly on its own power, and not just in the direction of the wind. It was the Wright Brothers who finally made Man's dream of flight come true.

The Wright Brothers were the first to make a successful human flight with a craft that was powered by an engine, and was heavier than air, on December 17th, 1903.

Orville Wright



Wilbur Wright

What is drum communication, and who used it?

BOOM! BOOM! BOOM! Tha-kida... tha-ki-da...tha! Rat-a-tattat... don't you just love the sound of different types of drums? Early Man used drums as a means of communication.

In Africa, New Guinea, and tropical America, people used drums to send messages to other tribes who were far away. Such drums were often called 'talking drums'.

They could warn a tribe that a stranger was approaching, or could convey a message from one person to another.

Drums played an important role, not just in communication, but also in cultural and religious rituals as well.

What was the txalaparta, and where was it used?

The txalaparta was an instrument of communication that was used by the Basque people of Spain. Just as Africans had their talking drums, these people had the txalaparta.

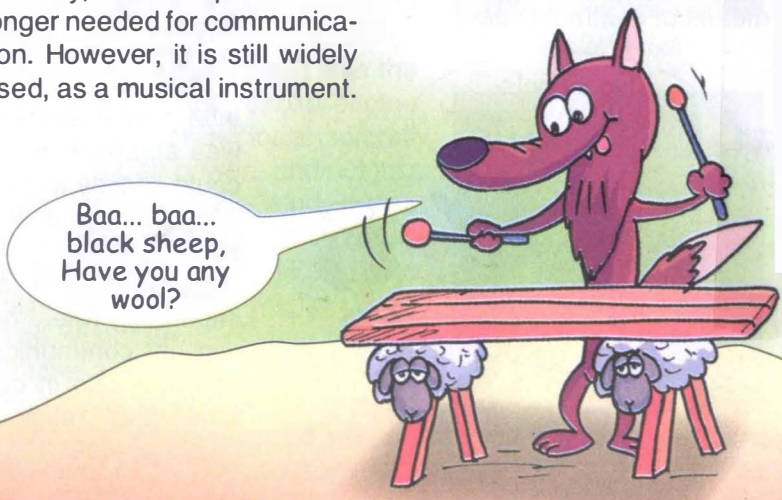
The txalaparta was made of wooden planks leaning over logs. When hit with a special stick, it would produce a sound. The tone would vary according to where the instrument was hit. The Basques were thus, able to send messages by producing different sounds on the txalaparta.

Today, the txalaparta is no longer needed for communication. However, it is still widely used, as a musical instrument.

Curious Fact

No Name!

Only one country is permitted to issue postage stamps without including the nation's name. That is Great Britain. It was the first country to issue postage stamps in 1840. In place of its country's name, Britain is allowed to include an image of its ruling monarch.



What is the role of the totem pole in communication?

Totem poles are large wooden poles that are beautifully carved with many symbols.

The totem pole of the Red Indians, provided a means of communicating their stories, myths, and legends. They were generally carved from giant trees, and were made up of an arrangement of symbols. The symbols on the totem pole told a story, or recalled an event. These messages and stories tell us a lot about the Red Indians, and their culture.

Some poles were erected to celebrate cultural beliefs, others were just an artistic presentation. Certain poles also contained graves within them. But, whatever their purpose, totem poles are awesome.

Marathon Messenger!

You have all heard about marathon races, in which the participants run across very long distances. This game was first held to honour the memory of an ancient Greek soldier named Pheidippides who made a heroic long distance run just to communicate his country's victory over Persians, at the town of Marathon in BC 490.

How were pigeons used as carriers of messages?

Around 3000 years ago, King Solomon and the Queen of Sheba exchanged messages by carrier pigeons. These are specially trained pigeons which will find their way back home when they are released. The Egyptians and the Persians first used carrier pigeons 3,000 years ago.

First, an important message would be written on a piece of paper. Then, that paper was neatly folded, and secured in a small canister is attached to a pigeon's leg. Once the pigeon was released, it would try to fly back to its home behind the lines, where the message would be read, and transmitted to the proper military planners.

Probably the most famous of all the carrier pigeons was one named Cher Ami. He flew 12 important missions to deliver messages. Perhaps the most important message he carried was the one that saved the lives of over 200 American soldiers, though he was badly wounded by enemy fire.

War and Signal

In wartime, visual signal are used in many ways. There are internationally accepted visual signals to show readiness to surrender. If you are close to the enemy, holding hands above the head, is the sign of surrender. At a distance, the defeated man waves a white flag.

What was the Pony Express?

The Pony Express was a fast mail service crossing the North American continent from the Missouri River to the Pacific coast.

Messages were carried on horseback relay across the plains, deserts, and mountains of the Western US. Compared to earlier delivery services, the Pony Express was very fast.

In 1861, telegraph wires connected New York and San Francisco, and the Pony Express riders went out of business. But their courage and determination to deliver messages through rain and snow, sleet and ice, over the toughest mountain trails and harshest deserts have become legendary.

What is the significance of the invention of Morse code?

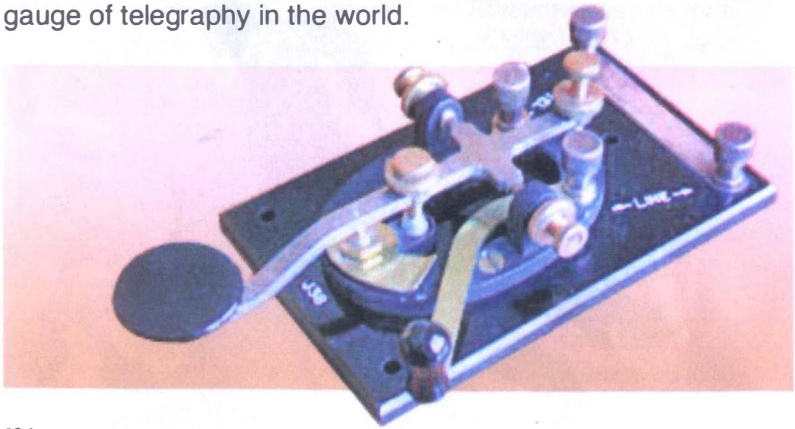
The Morse code was devised by Samuel Morse, an American painter. It is a system of 'dots and dashes' for sending messages. Each letter or numeral is represented by a unique sequence of dots and dashes. The duration of a dash is three times the duration of a dot. Based on this system, Samuel Morse developed the concept of a single - wire telegraph.

The idea of a Morse code came to Morse when he was on a ship to New York. There, he met Dr. Charles Jackson of Boston, who was well schooled in electromagnetism. Morse became hooked on the concept of the telegraph.

Morse tapped out the first telegraphic message from the Supreme Court Building in Washington to Baltimore. In time, the Morse code would become the primary language of telegraphy in the world.

Samuel Morse

Morse Key



First Phone Call

"Mr. Watson, come here. I want to see you", said Graham Bell into the mouthpiece of the telephone. This was the first sentence spoken by Man over the telephone. Thomas Watson was Bell's assistant.

Why is the invention of the telephone a landmark in history?

Alexander Graham Bell invented the telephone on 10th March, 1876. Earlier, Bell had devised the acoustic telegraph to send multiple Morse code messages down a single wire.

Bell first became interested in the science of sound, because both his mother and wife were deaf. His experiments in sound eventually led him to want to send voice signals down a telegraph wire. He was able to get some funding, and hired an assistant, Thomas Watson. Together, they were able to invent the telephone. Bell used his invention, the first telephone, on March 10th, just three days after the patent was granted.

The telephone has made distances seem less, and the world seem smaller.

Marconi with his Wireless Equipment

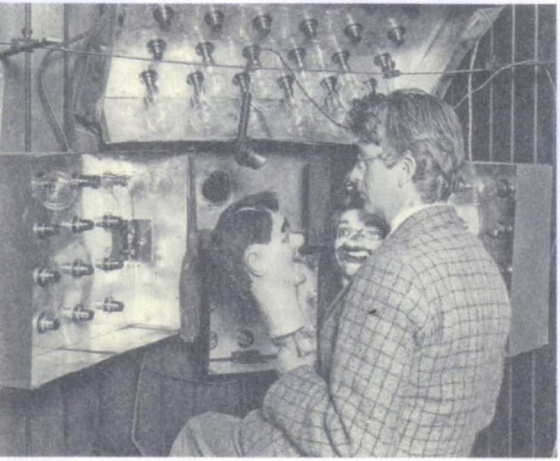
Why is it said that Marconi's reception of radio signals was a great event?

Marconi

Guglielmo Marconi, an Italian inventor, actually proved the feasibility of radio communication. Marconi's earliest experiments were inspired by the work of Heinrich Hertz. Hertz had shown that radio waves could be created and detected.

December 12th, 1901 was a memorable day in the history of broadcasting. On that day, at 12.30 pm, Marconi picked up three dots on his wireless telegraph equipment. The signal, the Morse code for the letter S, was sent from Poldhu, Cornwall, in England. The signal had travelled 3500 kilometres before being picked up by Marconi's wireless telegraph equipment.

This moment is generally accepted as the moment in which the radio became reality. Radio became the lifeline for many. Truly, radio has proved to be a historical and social landmark.



John Baird in his studio

John Baird

Why is television considered a mixed blessing?

Television is a way of sending and receiving moving images and sounds over wires, or through the air, by electrical impulses.

Television's development depended upon previous inventions, and more than one person contributed to the development of television, as we know it today.

In England, in the 1920s, John Baird, a Scottish amateur scientist, successfully transmitted the first TV picture, after years of work.

Television has been praised for its ability to transmit visual images with accompanying sound to entertain, educate, and to provide a sense of truth.

On the other hand, because of television, children have witnessed war, murder, and violence first hand, so television can actually be considered a mixed blessing.

In any case, television has sparked revolutions in entertainment, journalism, and social behaviour that are still ongoing.

What is the Internet?

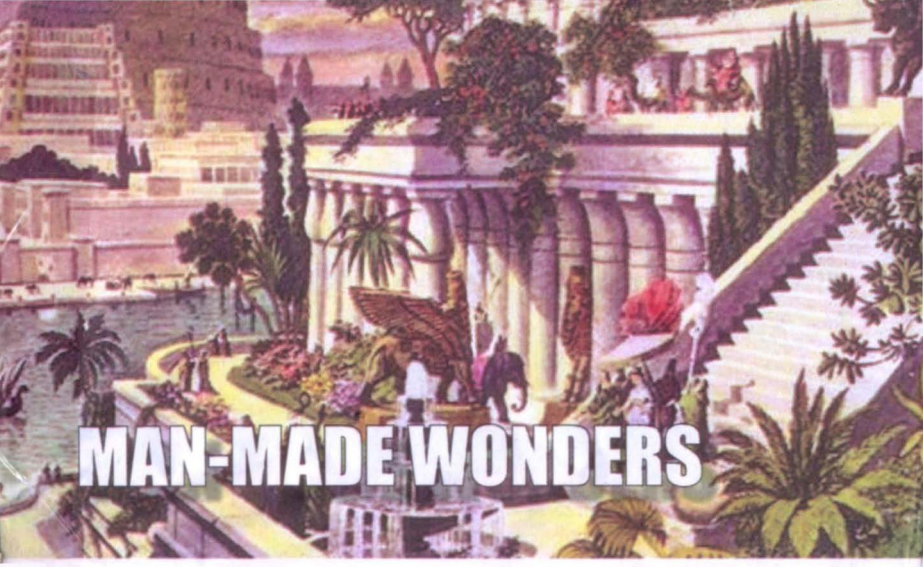
The Internet is the largest computer network in the world. It links millions of smaller networks which are connected to each other by phone lines, cables, or wireless connections.

If your computer is connected to the Internet, it can help you to get information from other computers, send messages to a friend who lives far away, or do lots of other amazing things like hear a song, or watch a famous movie.

This is possible because when you log on to the Internet, you are given access to the other computers that are also connected.

E-mail

Today, people rarely write letters- they send e-mails instead. Electronic mail or e-mail, is a method of using your computer to send messages to other people who are connected to the Internet via their computers. Your message is first delivered to a computer called the mail server. From there, it is transferred through the net, until it reaches its destination. Just as you need to know a person's address to send a letter, you have to know a person's e-mail address to send an e-mail.



MAN-MADE WONDERS

Why were the Hanging Gardens built?

The Hanging Gardens of Babylon are thought to have been built in the ancient city of Babylon. Even though there is no proof that they actually existed, they are considered to be one of the Seven Wonders of the World.

The garden was built by King Nebuchadnezzar in 605 BC. The gardens were built to cheer up Nebuchadnezzar's homesick wife, Amytis. The land she came from was green, and she found the flat, sun-baked terrain of Mesopotamia depressing.

The king decided to recreate her homeland by building an artificial mountain with rooftop gardens. So, he created a garden that consisted of vaulted terraces, raised one above another.

The terraces rested upon cube-shaped pillars which were hollow and filled with earth. Sadly, all that is left of these spectacular gardens today are the remains of a well, and one or two stones.

Tower of Pisa

Curious Fact

Stopped leaning!

In 2008, engineers stated that the Leaning Tower of Pisa, had stopped moving. This is the first time in its history that it has not been slowly leaning further to one side.

Why is the Leaning Tower of Pisa so important?

The Leaning Tower of Pisa, Italy, is famous simply because it leans! It is actually the bell tower of the cathedral of the city. Although it was designed to stand straight, the tower began leaning soon after the start of construction in 1173.

In an effort to compensate for the tilt, the engineers built the higher floors with one side taller than the other. This made the tower begin to lean in the other direction. Because of this, the tower is actually curved!

The tower stands 56 metres high, and until 1990 - was leaning over. It was estimated that the lean was increasing by one inch every 20 years.

The Great Pyramid

Why is one of the Giza pyramids called the Great Pyramid?

The Great Pyramid at Giza is a symbol of Egypt itself. In the 26th century BC, as Egyptian civilization was reaching its height, three kings- Khufu, his son Khafre, and his grandson Menkure- ordered the construction of three huge pyramids that would serve as their tombs. The first of these, the Great Pyramid, is the largest ever built. It stands with the other two pyramids, and the Great Sphinx, in a cluster near the town of Giza.

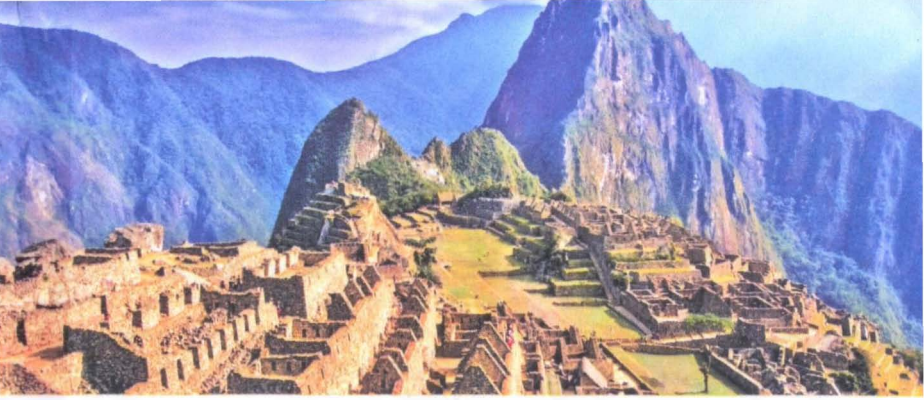
The Egyptians believed that life would continue after death in a form similar to that experienced on Earth. Thus, in Egypt, a dwelling place was provided for the dead in the form of a pyramid, or a rock tomb. The Great Pyramid is 230 metres long on each side, 143 metres high, and is composed of 2,300,000 blocks of stone, each averaging 2500 kilos in weight. Until the 19th century, it was the tallest building in the world.

Why did the people of France gift the Statue of Liberty to the USA?

When you think of the USA, the first thing that comes to the mind is the Statue of Liberty- a colossal statue of the Roman goddess- Libertas holding aloft a torch, facing the Atlantic Ocean. The Statue of Liberty was a gift from the people of France to the citizens of the USA to celebrate the 100th year of the Declaration of Independence, which fell on the 4th of July, 1876.

The Statue of Liberty stands on Liberty Island, in the New York Bay. It is over 93 metres tall. It is made of pure copper, and holds a gold plated torch in one hand to welcome those arriving in America from across the ocean. The left hand holds a stone tablet representing the Declaration of Independence. There are broken chains representing freedom from bonds at the feet of the statue, and on its head, there is a crown with seven points. These seven points symbolize the seven seas and seven continents- and also the fact that people from all over the world are welcome in America.

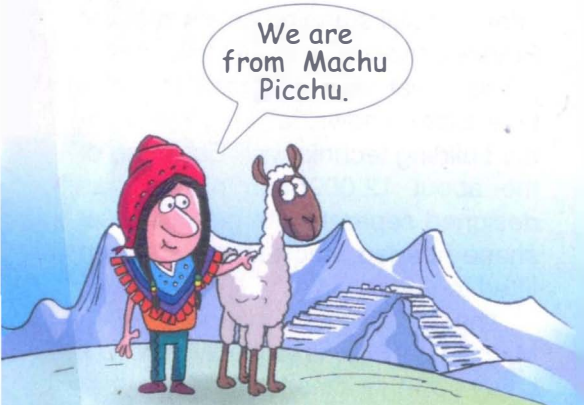
The Statue of Liberty was designed by French sculptor Auguste Bartholdi.



Why is Machu Picchu known as 'The Lost City of the Incas'?

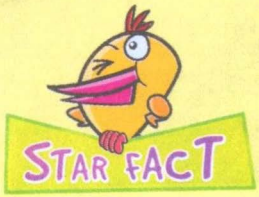
Machu Picchu is located on the saddle between two mountains, overlooking the Urubamba River, which winds 900 metres below it.

After centuries, lost in the jungle of Cuzco, Machu Picchu was rediscovered in 1911 by an archaeologist, Hiram Bingham. Actually, Machu Picchu was not a city at all. It was built by the Incas as a royal estate and religious retreat in 1460-70 AD, and it was abandoned less than 100 years later, as the empire collapsed under Spanish conquest.



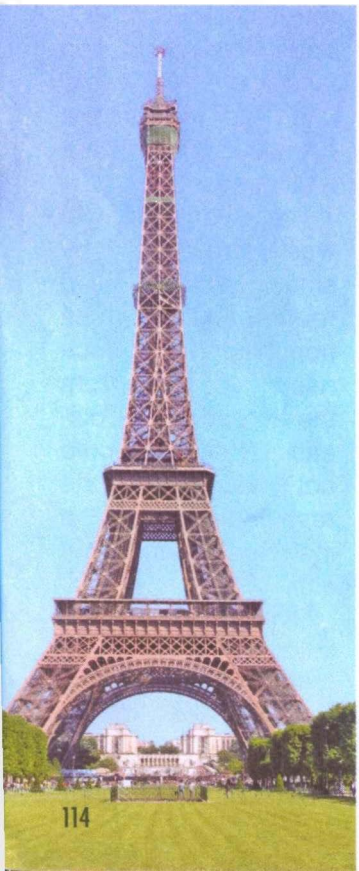
The Spanish arrival was preceded by small pox, which killed roughly half the Inca population. The Inca rulers also died from the spread of the disease. The Incas would not have had the resources needed to maintain Machu Picchu.

Over the centuries, the surrounding jungle grew to cover the site, and few knew of its existence.



I'm popular

Being so popular, the Eiffel Tower design has been recreated around the world, including the half scale replica at the Paris Las Vegas Hotel in Nevada, USA and the full scale Tokyo Tower in Japan.



Why is the Eiffel Tower considered a symbol of France's technological excellence?

The Eiffel Tower was built for the World Exhibition that was held to celebrate the Centenary of the French Revolution of 1789. It was meant to be a temporary construction, and was built so that it could be easily dismantled. However, more than a century later, it is still standing as a symbol of France's technological excellence.

The tower was designed by Gustave Eiffel, known for his revolutionary building techniques. Each one of the about 12,000 iron pieces was designed separately to get the exact shape needed, and these were then fitted together.

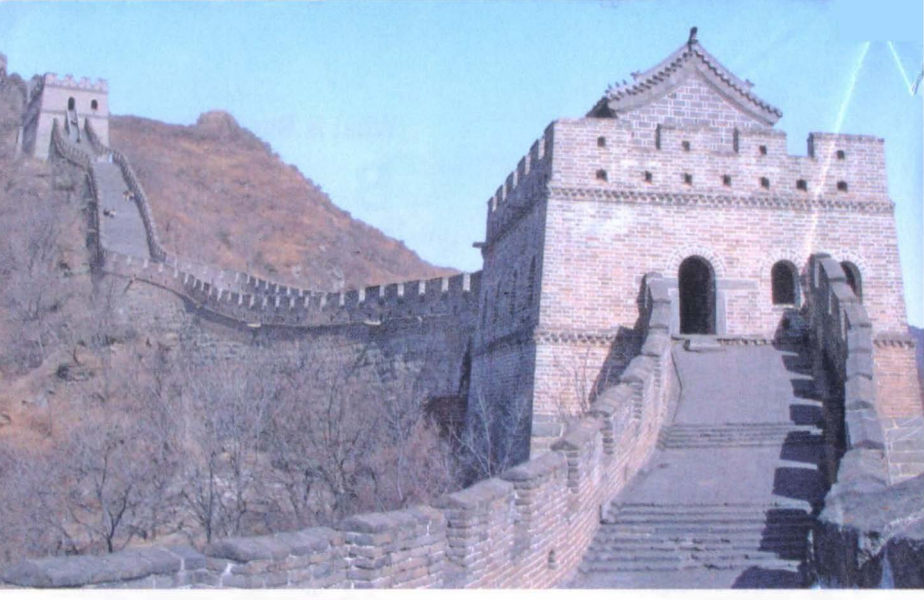
The Eiffel tower, inaugurated on March 31st 1889, is probably Europe's best known landmark.

What is Big Ben?

Big Ben is the name given to the massive bell inside the clock tower of the Houses of Parliament in London. It weighs more than 14 tonnes, and has four faces that are illuminated at night. Each of the dials is 7 metres in diameter, and the minute hands are four and a half metres long! Big Ben was the world's largest clock when it was installed in the middle of the 19th century. The name Big Ben actually refers to the clock's hour bell, the largest of the clock's five bells. The other four are used as quarter bells.

The clock has rarely stopped. Even after a bomb destroyed the Commons chamber during World War II, the clock tower survived.

Big Ben first rang across Westminster on 31st May 1859, and the chimes were first broadcast by the BBC on 31st December 1923, a tradition that continues to this day.



Why was the Great Wall of China built?

Imagine an enormous stone snake thousands of kilometres long, writhing in endless coils over rugged mountains, stretching out over hills and valleys, until it disappears over the horizon.

Then you will have an idea of why the Great Wall of China is considered one of the wonders of the world.

The Great Wall is the world's longest man-made structure, stretching over approximately 6,400 km from Shanhaiguan in the east to Lop Nur in the west.

The Great Wall of China was very important throughout China's history. It was built and remodeled throughout many historical dynasties of China for several reasons. It was constructed for protection from northern invaders. The Great Wall that can still be seen today was built during the Ming Dynasty.

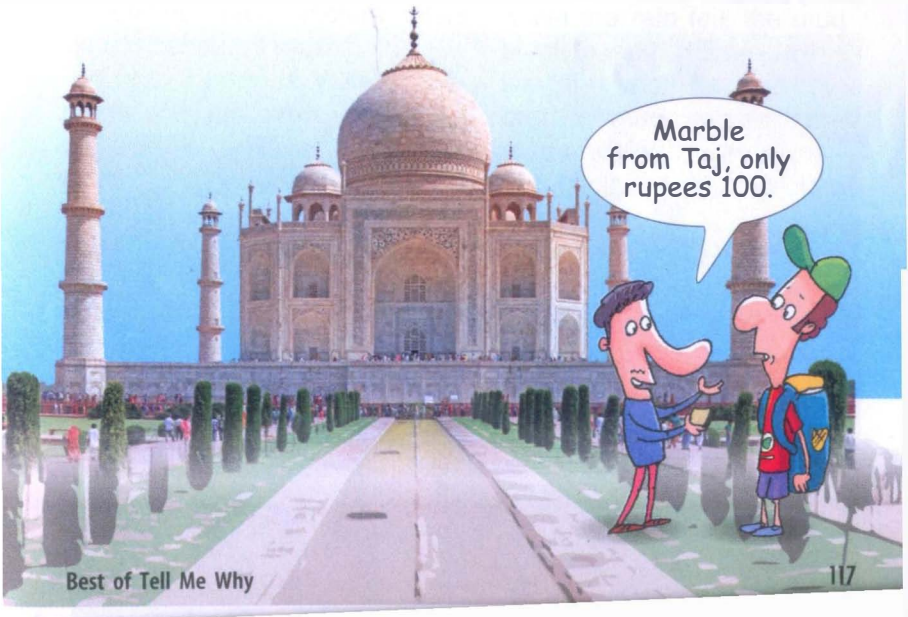
Why is the architecture of the Taj Mahal considered to be extraordinary?

The Taj Mahal is a symbol of immortal love, a magnificent tomb created by the Mughal Emperor Shah Jahan, on the banks of River Yamuna, Agra for his beloved wife, Mumtaz Mahal.

Though some attribute the design to Geronimo Veroneo, an Italian in the Mughal service, evidence suggests that it was designed by Ustad Isa Khan Effendi, a Persian, who assigned the detailed work to his pupil Ustad Ahmad.

The Taj was best known for the quality of the marbles used in it. The Makrana white marble of the Taj assumes subtle variations of light, tint and tone at different times of the day.

At dawn it assumes a soft dreamy aspect. At noon, it appears to be a dazzling white, and in the moonlight, the dome looks like a huge pearl!



Where is the statue of Christ the Redeemer located?

One of the world's best known, and most beloved monuments stands atop the Corcovado Mountain in Rio de Janeiro, a famous city of Brazil, at a height of 710 metres. This is the statue of Christ the Redeemer, which is one of the wonders of our world.

To reach the statue, you can travel by a miniature train. This train runs through the steep Atlantic Rainforest up to the foot of the statue. From the base of the statue, you can get stunning glimpses of Rio from many different angles.

The statue took five years to construct, and was inaugurated on October 12th, 1931. It has become a symbol of the city, and of the warmth of the Brazilian people, who receive visitors with open arms.

Why are mounds sometimes the sites of ancient cities?

Did you know that large mounds sometimes have ancient cities hidden beneath them?

In fact, the Indus Valley Civilization was discovered when an archeologist, R.D. Bannerjee, visited Mohenjodaro, and saw a large mound. He thought there might be something underneath, and started digging. As the mud was gradually removed, an entire city was revealed!

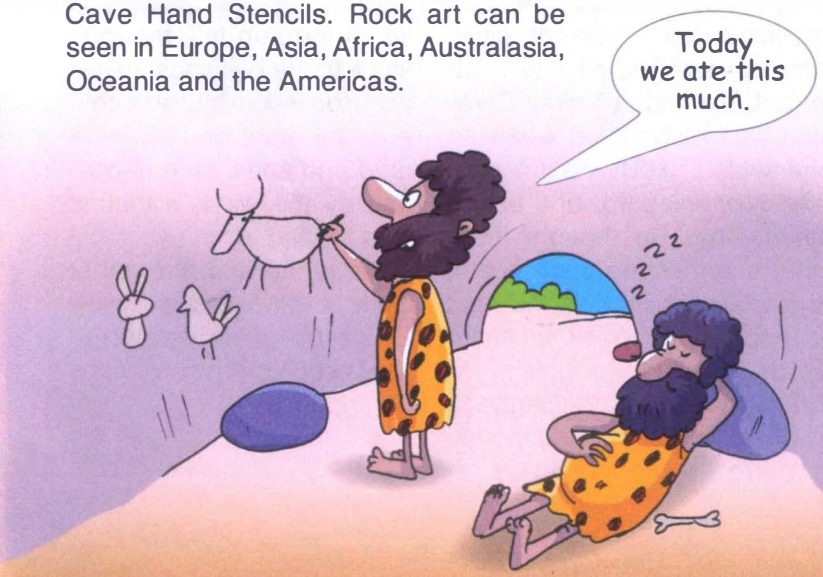
When an ancient city began to decline, people left it, and moved elsewhere. After hundreds of years, the abandoned buildings crumbled, and broke down. The wind blew mud and sand over them, and when the rain fell, the mud stuck to the buildings. In this way, the whole city was covered by mud, and as more mud and sand were deposited by the wind, a mound was formed.

Harappa, and the other cities of the Indus Valley Civilization were discovered when such mounds were dug up.

Who were the first artists?

About 30,000 years ago, Man first began to paint on the walls and roofs of caves, and on rocks. The most common themes in cave paintings are large wild animals, such as bison, horses, and deer. Stone Age carvings have also been found as far north as Scandinavia.

The main form of prehistoric art is 'rock art'. This includes, petroglyphs, otherwise known as rock carvings. An example is the Blombos cave engravings. A second form- are pictographs, which includes drawn or painted signs, geometric symbols, hand stencils, and handprints - see for instance the tragic Gargas Cave Hand Stencils. Rock art can be seen in Europe, Asia, Africa, Australasia, Oceania and the Americas.



Bald Togetherness

Emperor Theophilus, ruler of the Eastern Roman Empire from AD 829 to 842, lost all his hair, and became completely bald. He immediately issued an edict that everyman, woman, and child in his kingdom would have to shave his or her head too! The penalty for not obeying this royal command was death!

Were there doctors in the Stone Age?

There were no doctors in the Stone Age like there are doctors today. However, there were wise men who knew how to use plants to cure things like an upset tummy.

In the Stone Age, illness was often thought to be caused by evil spirits. Eight thousand years old skulls have been discovered with holes in them.

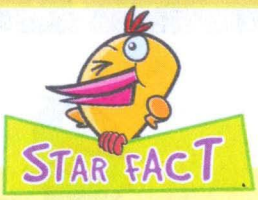
This suggests that early 'doctors' even tried their hands at operations, and cut holes in the skull of a patient, probably to let evil spirits escape!

Why did the Paleolithic people not live in one place?

The Paleolithic people wandered from place to place in search of food. They lived near streams or rivers, so that they could get rocks for tools, and enough water for their needs.

They did not know how to build a home. Usually, they would live in caves, or natural rock shelters. Gradually, Paleolithic - Man used his tools to cut branches, and he used these branches to make a sort of roof over a simple arrangement of stones.

They ate the animals they killed, along with seeds and fruits. Their clothes were made of animal fur, leaves, and bark. They lived from day to day, and yet there was beauty in their lives too, as can be seen from the many paintings they made on the walls of caves.



Onions for Health

Onions seem to play a very important role in the lives of the Egyptians. They believe that onions are good for health, and it can cure diseases. The Ancient Egyptians drew onions in the paintings in their tombs.

What is the story of Gilgamesh?

Gilgamesh was a Sumerian king who ruled the city of Uruk, thousands of years ago. He was afraid of death, and travelled to a faraway land to learn the secret of immortality from Utnapishtin, who was believed to enjoy eternal life.

Utnapishtin told Gilgamesh that if he could stay awake for six days and seven nights, he would live forever.

Alas, Gilgamesh found it impossible to do so, and he realized that it is more important to enjoy life, than to worry about death.

Who is an Egyptologist?

An Egyptologist is a person who specializes in Egyptology, the scientific study of Ancient Egypt. He studies ancient Egyptian history, language, literature, religion, and art by examining and analysing the remains of temples, tombs and towns that are still to be found in Egypt. He also studies written records. Becoming an Egyptologist is not easy, and involves many years of study and hard work.

What are Chinese junks?

Chinese junks were sailing ships that had sails made of woven matting. Some of them were very big, and had five or more masts.

Chinese junks sailed as far as Arabia, East Africa, and Indonesia. Though they increased the trade to China, the Chinese did not set up any trading posts in other countries like the Europeans did.

Chinese junks were also used by pirates, and the sight of one used to strike fear into the hearts of sailors in merchant ships in the South China Sea and the Indian Ocean.

If you wonder how they came to be called 'junks', the English name comes from Malay word 'gong' or 'jong'... which later became 'junk'!

When was Rome founded?

Around 1000 BC, a wave of invaders crossed the Alps, and occupied parts of Central and Southern Italy. Coming from Indo-European stock, they were made up of four tribes – the Samnites, Sabines, Umbrians and Latins.

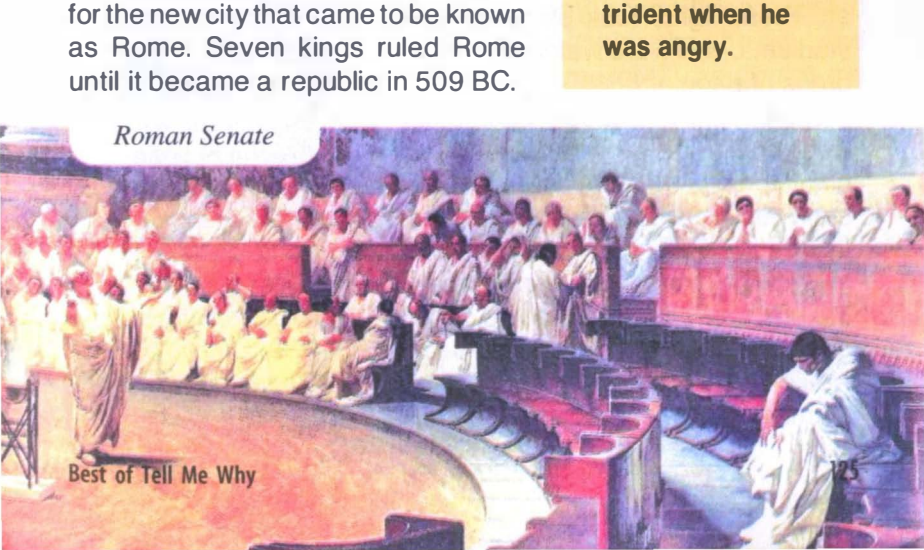
The Latins settled in Central Italy. By 753 BC, they decided to build a city, and chose a site on the banks of the River Tiber.

They faced constant threat from their neighbours, the Etruscans, who were settled on the north of the Tiber. The Latins realized that their enemies could cross the river at only one point, and that the Palatine Hill overlooked this point.

Hence, they chose that as the site for the new city that came to be known as Rome. Seven kings ruled Rome until it became a republic in 509 BC.

Earth Shaker

Poseidon was the Greek god of the sea, and his kingdom is the vast ocean which he has populated with creatures of his own design. The Ancient Greeks believed that he caused earthquakes by stamping on the ground, or striking it with a trident when he was angry.


Roman Senate

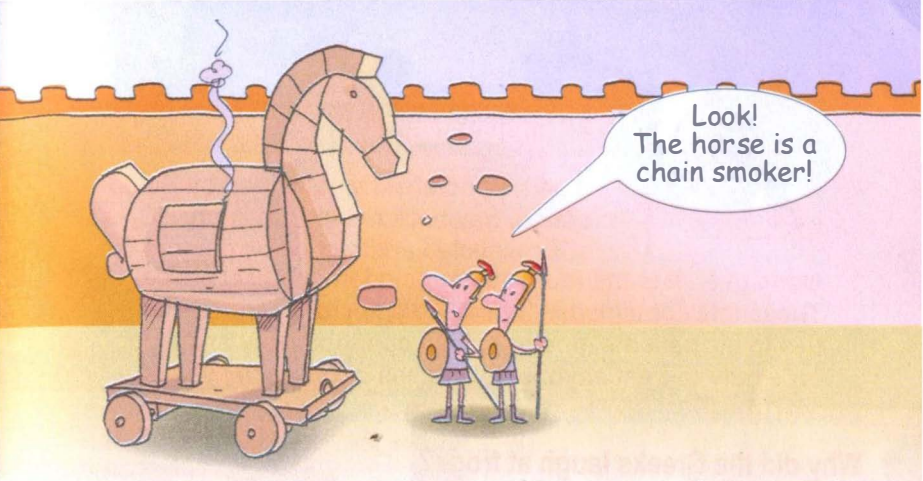
Who were the Roman gladiators?

Just as some people like watching horror movies, the Romans liked to watch people fight and kill each other. These fights took place in huge stadiums, and were watched by hundreds of people.

The people who fought each other to entertain the crowds were called gladiators. Gladiators were usually criminals, prisoners of war, or slaves. During the fight, if one of them was injured, he would beg for mercy. If the emperor and the watching crowd gave the thumbs up sign, his life would be spared. But if they gave the thumbs down sign, he would die.

Am I right?

Democritus was a cheerful philosopher. He argued that the cosmos was endless, and made up of tiny particles called atoms, moving around in space.



Why is the Trojan horse famous?

Homer's epic poem 'Iliad' is the story of the Trojan War. This was a war that lasted ten long years. It was fought between the Greeks, led by King Agamemnon, and the people of Troy, which is situated on the coast of what is now known as Turkey.

The war started when Paris, a Trojan prince, carried away Helen, a Greek princess, to Troy. The Greeks were determined to get her back, but though they fought against Troy for ten years, they were not able to get inside its walls.

Finally, they pretended to sail away, leaving behind a huge wooden horse at the gates of the city. The Trojans thought that the horse was a parting gift from the Greeks, and dragged the horse inside the city.

However, the horse was actually filled with Greek soldiers. When night fell, they opened a concealed door in the horse, and came out. They burnt the city of Troy, helped by the Greek army, which had returned stealthily.

The Greeks defeated Troy by this trick, and the term 'Trojan horse' has come to mean a person or thing that is used to trick an enemy, in order to achieve a secret purpose.

Hippocrates Oath

The Hippocrates Oath, written by Hippocrates, way back in the 5th century BC, is still respected and recited by doctors the world over. It is the foundation of modern medical ethics. The tenets contained in it relate to a doctor's responsibilities to his patients, doctor patient confidentiality and a doctor's duty to treat anyone, regardless of his social status.

Why did the Greeks laugh at frogs?

A famous Greek playwright, Aristophanes, wrote a very funny play about frogs. It became a great hit, and from then on, the Greeks always considered frogs to be comical creatures.

The Greeks loved watching plays, and they built open air theatres on hillsides. The actors were all men, who wore masks to depict the characters they were representing. Greek plays were either comedies or tragedies. Tragedies were often about the past, whereas comedies were usually about everyday life.

Ruins of Ancient Olympia

Why was Olympia so important for the Ancient Greeks?

Olympia was an important religious centre in Ancient Greece. Here, there was a magnificent temple built in honour of the god Zeus. He was the father of all the gods, and ruler of both gods and men.

People from far and near came to worship at this temple. They tried to please kind Zeus by excelling in sports, and many contests of skill and strength were held. Poets, singers, and artists also came to Olympia to sing praises of the gods, and the victors of the contests, and to show their own mastery over different art forms. So, Olympia became associated with excellence in different fields.

How did the Egyptians build the pyramids?

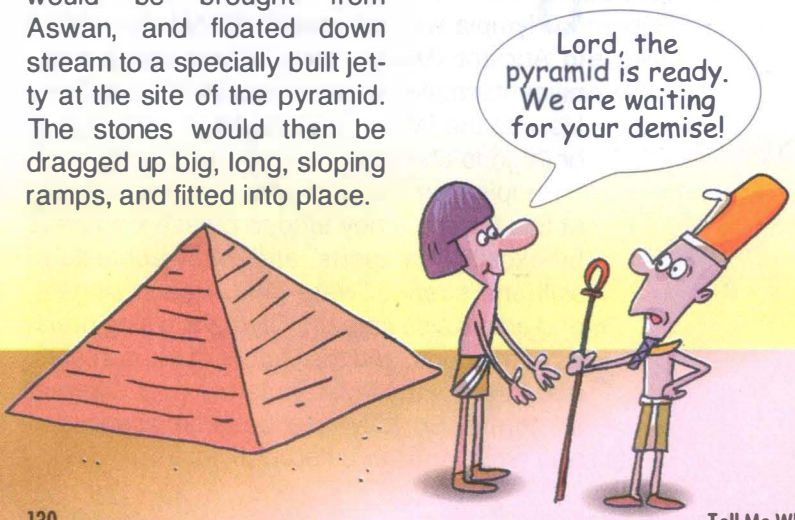
The pyramids of Egypt, dating back centuries, have stood the test of time. These huge structures were built of limestone and granite.

Blocks of stone weighing up to 15 tonnes were used. It is said that about a lakh slaves laboured for 20 years to build the Great Pyramid that houses the mummy of Pharaoh Khufu.

However, they worked only for three months in a year, when the Nile flooded its banks. Then, the granite would be brought from Aswan, and floated down stream to a specially built jetty at the site of the pyramid. The stones would then be dragged up big, long, sloping ramps, and fitted into place.

Code of Hammurabi

The Code of Hammurabi is a collection of the laws and edicts of the renowned Babylonian King Hammurabi. It is the earliest known, complete legal code. In 1901, a team of French archaeologists at Susa, Iraq, unearthed a copy of the code, engraved on a block of black diorite.



Why is the monarchy of Asoka considered enlightened?

In ancient times, kings mostly ruled with an iron hand. Yet some kings stand out for their benevolence. One such is Emperor Asoka, who ruled Magadha in India from 269 BC to 232 BC.

In 261 BC, Asoka fought the Battle of Kalinga,which was to become a turning point in his life. This bloody war left more than 200000 casualties in its wake. Asoka was shocked by this sight, and decided that victory in war was not worth the price to be paid in terms of human misery. He renounced military conquest as a national policy, and converted to Buddhism.

Missionaries were sent to spread the message of Buddhism. From an aggressive ruler, Asoka had become a man with a conscience, and thus, is considered the world's first truly 'enlightened' monarch.

Legend of Rome

The popular legend related to the founding of Rome, features the twin brothers, Romulus and Remus. They were brought up by a she wolf. The legend says that the date for the founding of Rome was fixed in April, 753 BC.

Why is Alexander considered great?

Alexander, a Greek general, established an empire that stretched from Greece to India. He is popularly known as Alexander the Great, who lived from 356 to 323 BC.

Alexander was the son of Philip of Macedonia. Succeeding his father, he was able to build the greatest empire that existed at that time.

He defeated Persia and Mesopotamia. He also captured Tyre and Egypt. He pushed on till he reached northern India.

Satisfied with these vast conquests, he led his warriors home. But he died in Babylon, stricken with fever at the young age of 33.

Alexander had established one of the largest empires of all times. Above all he acted as a bridge between two different cultures, and thus marked his name in history.

What is the Hundred Years War?

The Hundred Years War is the name given to the long struggle between England and France, which started in 1337, and ended in 1453.

The Hundred Years War actually lasted for 116 years! The English kings had to pay homage to the French kings for being appointed Dukes of Aquitaine. They did not like to do this. Matters turned serious when Philip VI took over Edward, the King of England's land in France, and thus, war began.

The major events in this war include the Battle on the river Sluys in 1340.

Arthashastra

Chanakya, who was also known as Kautilya, became the prime minister of the great Chandragupta, the Maurya emperor. Legend describes him as being the author of a book titled 'Arthashastra'. 'Arthashastra', means science of property and material success. This success includes political and diplomatic strategy aimed at uniting India.

Why is Joan of Arc considered to be a symbol of courage and hope all over France?

The Hundred Years War between France and England was almost coming to an end.

Henry V, the English king, had died. Counselors, who were jealous of each other, ruled France, after the death of Charles VI. The army too, was totally discouraged. Then, out of nowhere, it appeared, a peasant girl, presented herself at the royal court. She claimed that she had heard heavenly voices telling her to free Orleans from the besieging English.

The army was inspired by this suggestion. This girl, who came to be known as Joan of Arc, led the French army into battle, and succeeded in driving away the English from Orleans.

Later, she was betrayed, and found guilty of sorcery. Although she was tragically burned at the stake, Joan of Arc helped unify France. This heroine is today regarded as a symbol of hope and courage.

Joan of Arc

The Way to Life

The earliest school of medicine known to mankind was Ayurveda, and it originated in India. It was consolidated 2500 years ago by Charaka, the father of medicine.

Bacterium which causes Bubonic Plague

In history, what is the Black Death?

A terrible disease reached Europe from Eastern countries. The Europeans thought it to be a curse of the 'savages' who lived in these countries. Today, this disease is understood to be bubonic/ pneumonic plague.

England, at that point of time, was prosperous. On a fine summer day in 1348, a French sailor stepped on English soil. He unknowingly carried the bacillus of the disease, and became the origin of the pestilence that later came to be known as the Black Death.

It is estimated that at least half a million people – which was a large percentage of the population- fell prey to the Black Death. The Black Death spread, and reached its peak in the spring of 1349.

It died out during autumn that same year, leaving behind a disrupted society, and having ruined trade in Europe.

Plague - A Painting

Which was the first ship to sail around the world?

Magellan, a Portuguese sailor, was in the service of the Spanish government, and he was one of the many engaged in the search for a new trade route to the East.

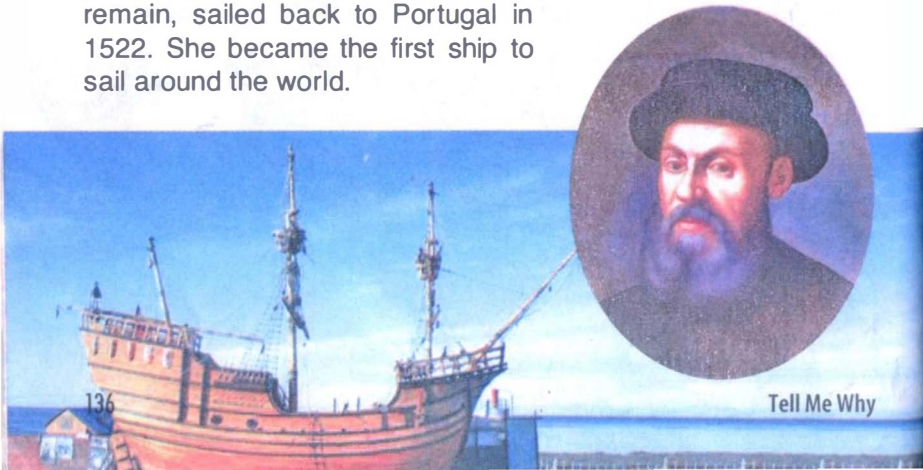
In August 1519, he set out with five ships badly in need of repair, and a crew drawn from many countries. He overcame a mutiny aboard the ships. The men had tried to revolt when they heard that Magellan was planning to look for a strait in the southernmost tip of South America. The strait, which allowed him to cross into the Pacific, is named after him.

Magellan crossed the Pacific with great difficulty and finally reached the Philippines, but was killed in a local war there. The Victoria, the only one of Magellan's ships to remain, sailed back to Portugal in 1522. She became the first ship to sail around the world.

Champions!

Indians were great inventors even centuries ago. The birth of algebra, trigonometry and calculus happened in India. Besides this, the decimal and place value system were originated, and developed in India.

Magellen and the replica of his Ship Victoria.



Why was the Battle of Plassey so important?

The Battle of Plassey, fought between the Nawab of Bengal, Siraj Ud Daulah, and the British East India Company is judged as one of the pivotal battles leading to the formation of the British Empire in India.

The battle took place on June 23rd, 1757, at Plassey, India. Bengal had a long standing treaty with the East India Company, which held Calcutta. When Siraj Ud Daulah was crowned as the new Nawab of Bengal in 1756, he ignored the treaty, and occupied Calcutta.

The East India Company responded with an army led by Robert Clive, which recaptured Calcutta, and then caught up with the Nawab's army at the village of Plassey.

Most of the Nawab's army was led by traitors who had conspired with British. As a result, the troops of the Nawab fled the battle.

This victory helped the British, to form a strong Empire in India.

What were the effects of the French Revolution?

The effects of the French Revolution would be felt throughout the world. This revolution took the country from an absolute monarchy, to popular rule.

The French Revolution affected the world in several ways. Due to the people's revolt against the monarchy, the Russians succeeded in overthrowing the tsar, and moving from an absolute monarchy to communism. In fact, the French Revolution became the inspiration for several revolutions in the 19th and 20th centuries.

In short, we can say that the French Revolution was a step towards replacing traditional aristocratic forms of government with more open, elective systems. Along with the American Revolution, it inspired reformers throughout the western world, and fascinates us to this day.

Why is Napoleon Bonaparte considered a titanic figure in world history?

Napoleon Bonaparte was a French general, consul, and emperor.

In 1796, he defeated the Piedmontese and Austrians in Italy. After the French fleet was destroyed by Nelson at the Battle of the Nile in 1798, Napoleon returned to France.

In 1799, Napoleon instituted a military dictatorship, and became First Consul. In 1812, believing that Russia was allying with England, Napoleon marched to Moscow. However, his army retreated, broken by hunger and the icy Russian winter.

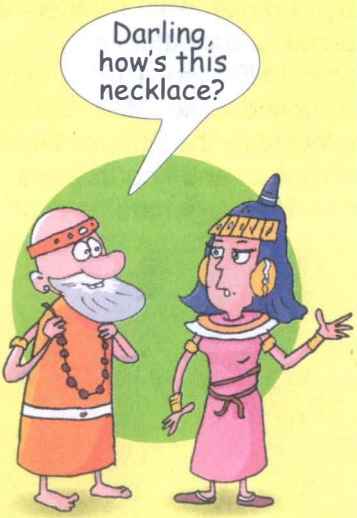
In 1813, Napoleon was victorious over the allied armies at Lutzen, and Dresden, but was routed at Leipzig. France was invaded and Napoleon was forced to abdicate.

Napoleon returned to France in 1815, regaining power for a period called the 'Hundred Days.' He was defeated by the Duke of Wellington's forces at Waterloo, and fled to Paris. He was banished to St. Helena, where he died.

Napoleon

Indus Jewellery

The people of the Indus valley were fond of wearing ornaments. Both men and women wore jewellery. Necklaces, beads and amulets were made from gold, silver, and semi-precious stones.



When was slavery abolished in the US?

Slavery was a dreadful system where one human being actually owned another. A slave had no rights, and was considered to be the property of his or her master.

Though slavery was abolished in England in 1772, the slave trade continued for many years more. But, finally Parliament declared it illegal in 1833.

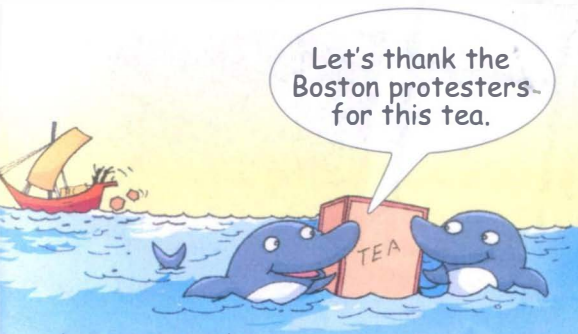
In America, slaves were also brought in directly from Africa until 1865. In the North, slaves were mainly house servants, while in the South slaves worked on farms.

By 1840, the issue of slavery had divided the nation into two. The North wanted to abolish slavery throughout the nation, while the South opposed the move. This led to a long civil war, which ended in 1865. The North won it, and slavery was abolished in America. The man behind this historical victory was President Abraham Lincoln.

Why is the Boston Tea Party a major turning point in history?

The Boston Tea Party was not a party at all, but an act of protest.

On December 16th, 1773, while the US was a group of colonies under British rule, a band of men dressed like Mohawk Indians boarded ships in the Boston Harbour, and dumped 342 chests of tea into the Boston harbour. The harbour ran brown for days afterward!



England had raised taxes in America to try and get money to pay back its debts. One of the taxes that England had raised was on tea imported into the American colonies. The Americans were opposed to the tax, and the Boston Tea Party was their form of protest.

With this act, the colonists started the violent part of the American Revolution, and events snowballed after that.

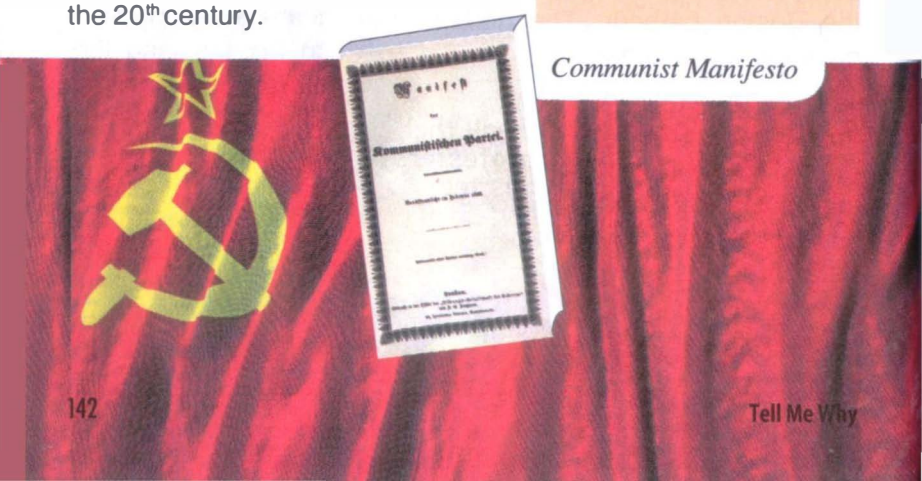
Why is the book ' The Communist Manifesto,' so famous?

The Communist Manifesto was first published on February 21st, 1848, and is one of the world's most influential political documents.

It was written by communist theorists Friedrich Engels and Karl Marx. However, Engels himself has said that the Manifesto was 'essentially Marx's work,' and that 'the basic thought, belongs solely and exclusively to Marx.'

The Manifesto suggested a course of action for a working class revolution in Europe to overthrow the ruling class. Its goal was to eventually bring about a classless society.

The Communist Manifesto was to become one of the most widely read, and discussed documents in the 20th century.



Communist Manifesto

First University

In 700 BC, the world's first university was established in India, in Takshashila. Students came from all over the world to receive education in over 60 different subjects. The University of Nalanda in the 4th century BC was another milestone.

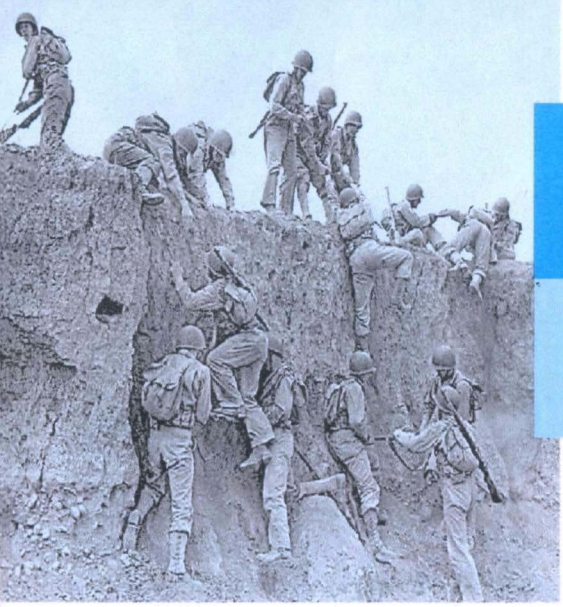
Why is the Industrial Revolution considered a landmark in history?

The Industrial Revolution may be defined as the application of power driven machinery to manufacturing. In the 18th century, all of Western Europe began to industrialize rapidly.

Electricity was a major factor in the phenomenally rapid industrialization of Europe.The coming of the railroads greatly facilitated industrialization. The big railway boom in Britain came in the years 1844 to 1847. At the beginning of the 19th century, the steam driven ships appeared on the horizon.

Communications also saw developments during this period. In 1871, telegraph cables reached from London to Australia; speeding up commercial transactions.

Alexander Graham Bell transmitted the human voice over a wire in 1876. The world continued to shrink at a great rate as new means of transport and communication increased the pace of life with the coming of the Industrial Revolution.



Central Powers
Germany, Austria - Hungary, Turkey.

Allied Powers
France, Britain, Russia, Italy and USA.

Why did World War I erupt?

World War I was an explosion that had been gradually building up, and the spark was the assassination of Archduke Franz Ferdinand, heir to the Austro-Hungarian throne, in Sarajevo on 28th June, 1914.

Ferdinand's death at the hands of Gavrilo Princip, a Serbian nationalist, set in train a series of events that resulted in the world's first global war.

The Austro-Hungarians used Ferdinand's death as an excuse to invade Serbia, crushing the nationalist movement there. However, Serbia, which was a small Balkan state, had ties with Russia. Fearing that Russia would come to Serbia's aid, the Austro-Hungarian government sought assurances from Germany, that Germany would be on their side if Russia declared war on Austria-Hungary. Germany readily agreed, and even encouraged Austria-Hungary's warlike stance. By this time, the European powers had formed two distinct sets of alliances. On one hand, there was an alliance between Britain, Russia and France and on the other; there was Germany, Austria, and Italy.

Why did World War II begin?

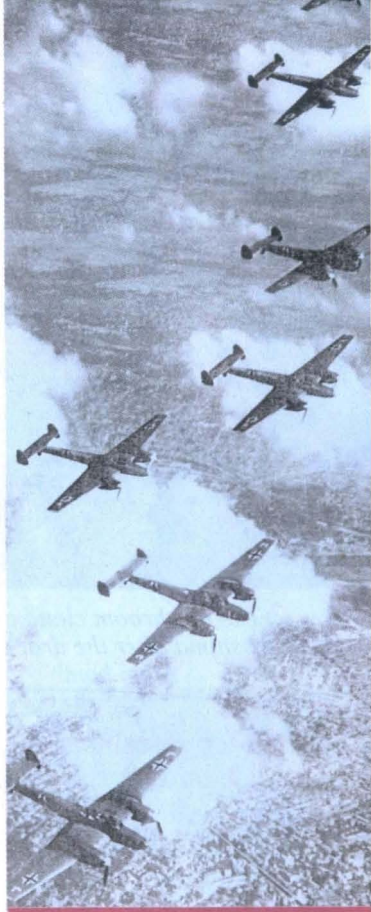
World War II lasted from 1939 to 1945. It was a total war that involved 61 countries, with 1.7 billion people.

After World War I ended in 1918, Germany had to give up land, and was banned from having armed forces. In 1933, the German people voted for a leader named Adolf Hitler, who led a political party in Germany called the National Socialists, or Nazis. Hitler promised to make his country great again, and quickly began to arm Germany once more, and to seize land from other countries.

On Friday 1st September, 1939, German forces stormed the Polish frontier. When Hitler refused to withdraw from Poland, Britain and France declared war on Germany.

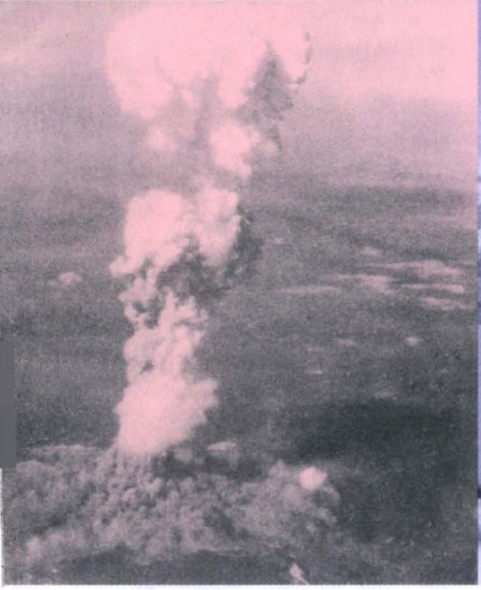
So, World War II began in Europe on 3rd September 1939. Soon, it became a global war, involving most of the world's nations, who were divided into opposing military alliances - the Allies and the Axis. It was the most widespread and deadliest war in history.

In 1945, the war ended in a victory for the Allies. The Soviet Union and USA subsequently emerged as the world's superpowers.



Axis Powers
Germany, Italy and Japan.

Allied Powers
France, Britain, United States of America, Soviet Union and China.



The mushroom cloud over Hiroshima after the dropping of Atom bomb

The mushroom cloud over Nagasaki after the dropping of Atom bomb

Why are Hiroshima and Nagasaki important in history?

On August 6th, 1945, the United States dropped the first atomic bomb on Japan. The bomb was known as 'Little Boy,' and was dropped on the city of Hiroshima.

The bomb was loaded aboard the US Bomber 'Enola Gay'. Attacking Hiroshima on August 6th, the bomb destroyed much of the city; killing more than 80,000 people.The first effect of the explosion was blinding light, accompanied by radiant heat from the fireball.

After three days, on August 9th 1945, US bombed the next Japanese city, Nagasaki.

The two bombs together took over 100,000 lives instantly. Even those who survived the blast, continued to suffer, and died years later, from the effects of radiation.

The attacks on Hiroshima and Nagasaki led to the surrender of the Japanese in World War II.

United Nations

The United Nations was established in 1945 to promote peace, security, and economic development. The term originally referred to the 26 countries that were allies in World War II. After the war, the United Nations formally came into existence, as a worldwide organization. Today, the UN has 193 members. It is a trusted peacekeeping force and is also involved in many development and economic aid programmes around the world.

Nuremberg Trials

After World War II, many leading Nazi and Japanese officials stood trial, charged with various war crimes. At Nuremberg, Germany,1945-46 , a trial of 22 leading Nazis was organized by an International Military Tribunal of US, French, Russian, and British judges. Twelve of the 22 defendants were sentenced to death. In Japan, General Tojo was executed in 1948.

Nuremberg Trials

Which were the major wars between India and Pakistan?

There have been three main conflicts between India and Pakistan after independence.

The first one came shortly after independence, and was waged in 1947 and 1948. The military was called upon to defend the borders of the state of Jammu and Kashmir, when tribals - mainly Pathans - attacked from the northwest reaches of Kashmir on October 22nd, 1947. Despite early successes, the Indian army suffered a setback in December 1947, which forced the Indian troops to retreat from the border areas. In the spring of 1948, the Indian side mounted another offensive to retake some of the ground that it had lost. Finally, the United Nations intervened, and brought the war to a close on January 1, 1949.

The second Indo-Pakistani conflict in 1965 was also fought

over Kashmir, and started without a formal declaration of war.

It is widely accepted that the war began with the infiltration of Pakistani-controlled guerrillas into Indian Kashmir in August 1965. Indian forces scored major victories, which led to Pakistani counter attacks. The war was at the point of a stalemate, when the UN unanimously passed a resolution, and the war ended on September 22nd.

The third Indo-Pakistani conflict was in 1971, when Pakistan's armed forces launched a fierce campaign in East Pakistan, to suppress a movement demanding independence for East Pakistan.

Displeased with India's support of the East Pakistan's Liberation Force or Mukti Bahini, Pakistan launched an air attack in the western sector on a number of Indian airfields in December 1971. The Indian air force retaliated the next day, and quickly achieved air superiority. During the fourteen-day war, the air force's Western Command conducted some 4,000 sorties. The army adopted a swift, three-pronged assault, and rapidly converged on Dhaka, the capital of East Pakistan.

In the meantime, the Indian Navy effectively blockaded East Pakistan. Dhaka fell to combined Indian and Mukti Bahini forces on December 16th, bringing a quick end to the war.

Dream Speech

Martin Luther King's 'I Have a Dream' speech was delivered from the steps of the Lincoln Memorial in the US capital in 1963. In the speech, King boldly called for an end to racism. It has been voted the top American speech of the 20th century. The speech was a defining moment in the American Civil Rights Movement.

Indian Soldiers Hoist the National Flag and Show the Victory Sign.

Why was the Kargil War a glorious victory for India?

The Kargil War was an armed conflict between India and Pakistan that took place between May and July 1999, in the Kargil district of Kashmir.

The cause of the war was the infiltration of Pakistani soldiers, and Kashmiri militants into positions on the Indian side of the Line of Control. The Indian Army, supported by the Indian Air Force, responded by attacking the Pakistani positions.

The Kargil War had three major phases. First, Pakistan captured several strategic high points in Kashmir. Next, India responded by interdicting supply routes, and finally, India pushed Pakistani forces back across the Line of Control.

July 26th, 1999 will go down in the annals of Indian history as a day when the determined Indian forces achieved a glorious victory over the retreating Pakistani army. It was on this day that the Indian victory over Pakistan was complete.

Why did the US launch a war against terrorism?

September 11th, 2001 is a date that the world will never forget. On this day, two hijacked airliners were flown into the World Trade Centre in New York City, and another into the Pentagon.

A fourth hijacked airliner crashed in open land in Pennsylvania. The attacks were the work of militants associated with the extremist group, Al-Qaeda.

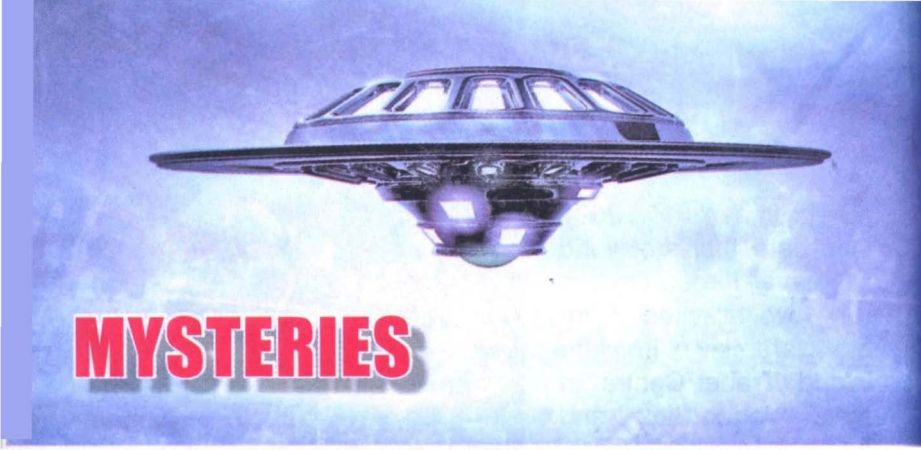
The US President, George W. Bush, described the attacks as an act of war, and launched a military campaign in Afghanistan, where the Taliban was believed to be harbouring terrorists, and the leader of the Al-Qaeda, Osama Bin Laden.

Years later, Bin Laden was killed at his hide out in Pakistan, in a US commando operation.

Attack on the World Trade Centre

Days To Go Around

The correct time taken by the Earth to revolve around the Sun was calculated by the famous astronomer Bhaskaracharya. His calculation showed that the Earth takes around 365.258756484 days to go around the Sun once.



MYSTERIES

What are UFOs?

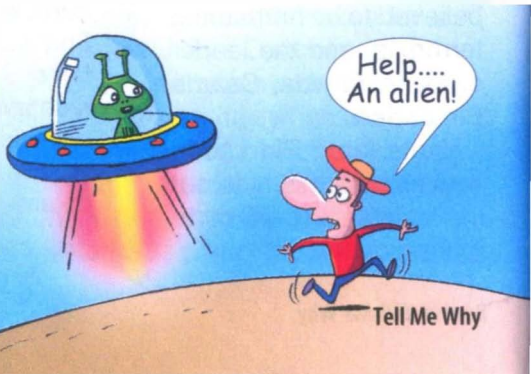
You must have seen movies and books featuring saucer shaped discs that hover over the ground.

In the books and movies, the discs are space ships or UFOs from another planet.

The term UFO means an unidentified flying object, and UFOs are one of the great mysteries that have fascinated Man for centuries.

Though many people claim to have seen UFOs, and some have even produced photographs of them, scientists usually have a simple explanation for them. Some of these so called sightings are hoaxes. Others may be secret army weapons that are tested at night. The public does not know about them, so when they see an unfamiliar object in the sky, they think it is a UFO.

Project Blue Book, a study on UFOs, conducted by the US, was stopped in the late 1960's, pointing out the inauthenticity of the evidences. However, plea for re-opening the investigation is also very high!



Why does the mystery of the Loch Ness Monster continue?

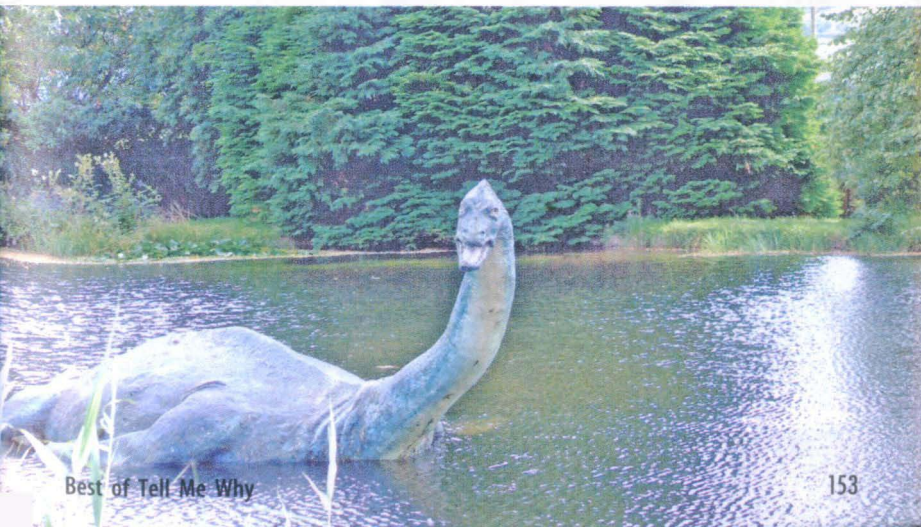
As far back as the 7th century, people have reported seeing a monster in the Loch Ness in Scotland. Loch means lake in Scotland. This is the largest freshwater lake in the UK. But, rather than being known for its size, it is famous for the mysterious legend of the Loch Ness monster, or Nessie.

For hundreds of years, people have reported catching a glimpse of a huge creature. This creature is said to have a small head, a long neck, and an immense body with flippers. Some people have shared photos they claim to have taken of this huge creature.

The legend is so great that even scientists have been intrigued, and many have conducted experiments, and come up with theories to try and explain what people could be witnessing.

One explanation is that the monster could be a prehistoric creature called a plesiosaur, an animal that has been considered to be extinct. Maybe, one of these creatures managed to survive in the Loch Ness Lake, who knows?

Sculpture of Nessie



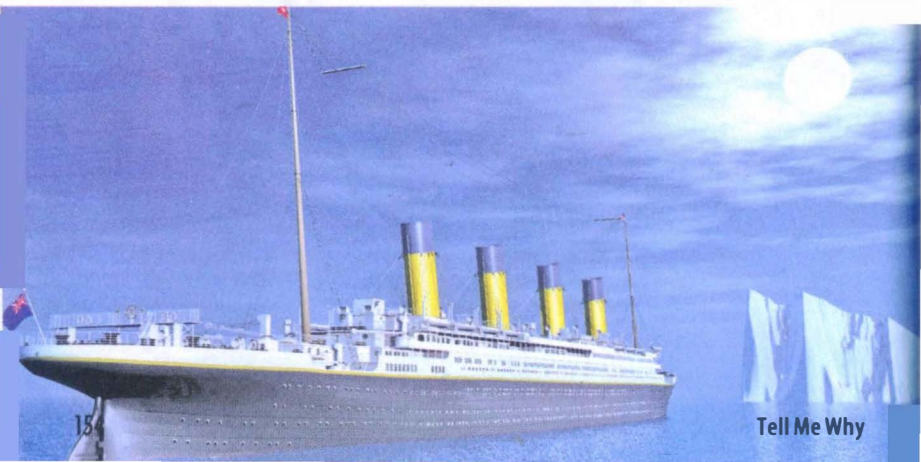
What mysterious occurrences are associated with the sinking of the 'Titanic'?

All of you might have heard of the 'Titanic'- and some of you might even have seen the movie about this unsinkable ship, which hit an iceberg on its maiden voyage, and sank.

It was claimed to be the largest ship ever built, and the disaster, which occurred on the night of 14th April, 1912, claimed more than 1250 lives. Did you know that many people had premonitions about this tragedy?

Fourteen years before this terrible catastrophe took place, a writer called Morgan Robertson wrote a book about a ship called 'Titan', which was believed to be unsinkable. In the book, the ship strikes an iceberg on its maiden voyage from Southampton, and sinks. Some other people reported to have strange visions about the sinking of a ship.

These may be mere co-incidences, but it is much more exciting to think of them as mysteries, isn't it?



Why are people still searching for buried Inca treasures?

Somewhere, deep within the mountain ranges between the Andes and the Amazon, there's said to exist a fabulous Inca treasure hidden from Spanish conquistadors.

The legend begins in the 16th century, when the great Inca Empire in western South America was being overrun by the Spanish.

Atahualpa was an Inca king who was captured in his palace by a Spanish commander. The Spanish agreed to release Atahualpa in return for a roomful of gold, but they later, went back on their agreement.

The Inca king was killed before the last, and largest part of the ransom had been delivered. So, his half brother, the last of the Inca rulers, buried the fabulous treasure in a secret mountain cave. And there, according to the legend, it has remained to this day!

Why are the Yeti and Sasquatch alike?

The Yeti is a huge creature, resembling an ape, that is believed to live in the Himalayas. Many people including Tenzing Norgay, one of the first men to reach the summit of Mount Everest, claim to have seen the Yeti.

The Yeti is also called the 'Abominable Snowman', and in many ways, it resembles another monster found in the American North West called the 'Sasquatch'.

The Sasquatch is also a giant fur covered beast that looks like an ape. The footprints that it leaves in the snow are so huge that some people call it 'Bigfoot'.

The Yeti's footprints are also huge, and though many people claim to have seen both these creatures, till now, no one has been able to prove that they really exist.

Why is Stonehenge unique?

On the misty green plains of Salisbury, in Southern England, stands one of the most mystical of the megaliths- Stonehenge.

The beauty of these stones takes one's breath away. The 3.96 metres high stones are unique in that, unlike the other megaliths, each stone has been artificially shaped into a curve. As a result, when they were assembled, they formed the outline of a circle, when seen from above.

At the same time, each stone had a slight bulge, so that when seen from below, they appeared to be in a straight line! Amazing, isn't it?

The astonishing scale and beauty of the stones, the great care and labour in construction, and the mystery that surrounds their original purpose, are just some of the reasons why Stonehenge is one of the most popular sights in England. Stonehenge is a magical experience indeed.

Stonehenge

Which are the islands that vanished mysteriously?

Have you heard of the Aurora Islands? Even if you have, you are unlikely to ever see them, for they have just vanished from the face of the Earth!

The story begins in the 18th century, when the captain of a ship, sailing in the South Atlantic waters, saw three small islands, called the Aurora Islands, after the name of the first ship. They soon became a common landmark for the Spanish ships that routinely went to South America- and then suddenly, the islands disappeared!

Since most islands are produced through volcanic activity, they can appear and disappear just as quickly over time, and leave no trace for sea explorers to find.

This may be the explanation why another phantom island, Isla Grande, which lay just to the north of the Aurora Islands, has now vanished too. However, this explanation does not hold good for the disappearance of islands called Davis' Land.

There is even an island named the Isle of Brasil, which keeps appearing off and on near the coast of Ireland.

Why is Mehrauli near Delhi famous?

Mehrauli near Delhi, is famous for an iron pillar. It is 1600 years old, made of pure wrought iron, and weighs six tonnes.

The pillar is over seven metres high, and has stood bare for all these years in the scorching climate of Delhi. Yet, there is no fungus, no rust, no corrosion, and nothing scars even the inscriptions made on it!

Why is this wrought iron pillar not affected by rust? For centuries, this question has haunted scientists throughout the world. Experts from the Indian Institute of Technology (IIT) have discovered that the wrought iron pillar was astonishingly pure, and a thin layer of 'misamite', a compound of iron, oxygen and hydrogen has protected the pillar from rust, over the centuries.

Whatever the scientific explanation, this pillar literally stands tall as one of the wonders that teach modern man the greatness of his ancestors, and their skill and knowledge of metallurgy.

Bermuda Triangle

The Bermuda Triangle is a region of the Atlantic Ocean between Bermuda and Florida, where ships and planes have mysteriously disappeared. Vincent Gaddis, who wrote about the disappearances, named the region: 'the deadly Bermuda Triangle'.

Why did the Bermuda Triangle receive so much attention from the media?

The legend of the Bermuda Triangle was uncovered when E.V.W. Jones, a reporter, penned an article on a strange occurrence he had stumbled across. It seemed that an unusual number of planes and ships had been disappearing in the ocean between Florida and Bermuda.

Over the years, more than 200 separate mysterious disa ppearances have been attributed to the Bermuda Triangle. No trace was ever found of the crafts, or their passengers.

The Shroud of Turin

The Shroud of Turin is reputedly the cloth in which Jesus Christ was wrapped and buried. The shroud is 4.34 metres long, and it bears the image of a man with wounds similar to those suffered by Jesus Christ. The shroud is unquestionably old. Its history is known from the year 1357, when it surfaced in the tiny village of Lirey, France. Today, it is kept in a silver chest in the Cathedral of St. John the Baptist in Turin, Italy, where it has been since 1578. Does the shroud really show the face of Jesus? No one really knows. Although, many scientists have expressed doubts about the accuracy of the image, millions believe it to be divine, and it has been a religious relic since the Middle Ages.

The disappearance of Flight 19, ranks at the very top of Bermuda Triangle lore. In, 1945, five Navy planes vanished while on a routine training mission over the Atlantic.

The media really went overboard putting forward theories as to what might have happened at Bermuda Triangle. The theories range from attacks by sea monsters, to freak killer waves, and kidnappings by aliens.

However, later studies reveal that most of the incidents have been inaccurately reported, and many agencies have declared that the number and nature of disappearances in the region is similar to any other area of the sea.

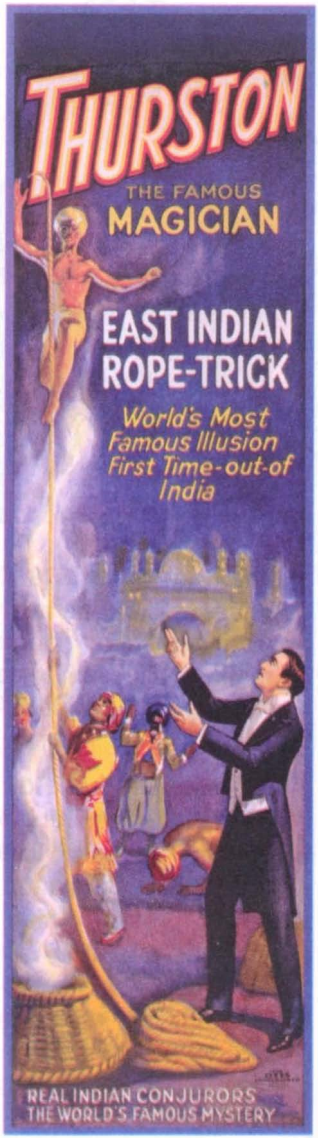
Why was the 'Indian rope trick' mysterious?

India is a land of countless mysteries that have puzzled the rest of the world. Perhaps, the most enduring of all these mysteries is that of the 'Indian rope trick'.

In the classic version of Indian rope trick, a rope is thrown into the air where it remains rigid. A young boy then climbs up the rope, only to disappear at the top. The performer quickly follows him, only to disappear when he reaches the top of the vertical rope!

Shortly after, pieces of the boy's body fall from the sky, and land on the ground at the bottom of the rope. A few seconds later, the performer is seen climbing down the rope with a bloodstained knife in his hand.On reaching firm ground, the performer utters a magic word, and the rope falls limp to the ground. He then gathers up the pieces of the boy's body, and bundles them under a sheet. Within seconds, the sheet is lifted, and the boy appears completely whole and unharmed!

Travellers to India have described this amazing trick for over 600 years, but there is considerable doubt as to whether the trick is fact or fantasy.

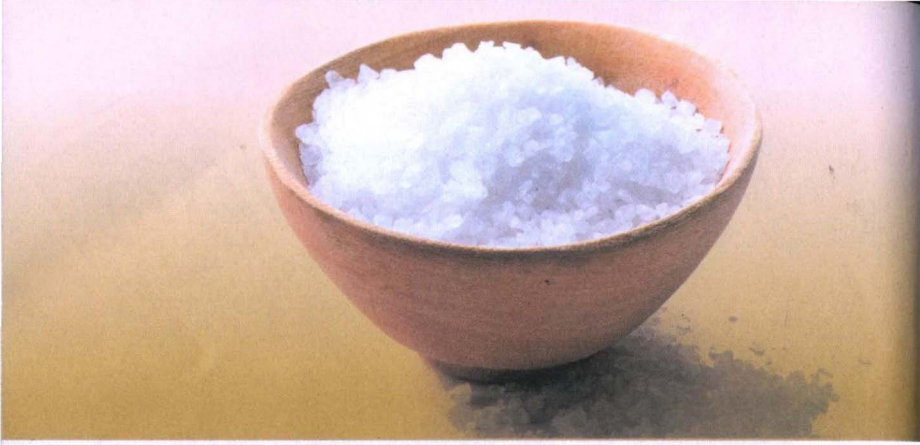


Why did the barter system develop?

Ramu and Deepu were brothers who were very excited, because their uncle was coming home. He always brought gifts for the boys. This time, he gave Ramu two bars of chocolate, while Deepu got two packets of potato chips. After he had left, Ramu said, "Deepu, I will give you one bar of milk chocolate, if you will give me a packet of potato chips in return." Deepu agreed, and soon, both the boys were having a feast of a bar of chocolate each, followed by packets of potato chips each, without having to pay anything.

Ramu did not have to buy any chips, and Deepu did not have to buy any chocolate. Now, wasn't that smart of them? This system of exchanging goods is known as the barter system.

Long before our ancestors invented money, they used the barter system to get what they needed. A farmer would exchange bundles of rice for a cow that another farmer had. In this way, both farmers would have all the rice and milk they needed, without any money having changed hands. It was all a matter of giving away whatever extra you had, in return for something you needed.



Why did salt become a form of money?

Since ancient times, salt has been used to flavour food. Early trade routes, and many of the first roads were established for transporting salt. Salt was considered so precious because it was needed by everyone, and was quite difficult to make. In fact, it was as precious as gold! So, it is not surprising that salt became a form of money all over the world.

In Ancient China, coins were made of salt. Cakes of salt have been used as money in some parts of Africa. Merchants used the salt money to buy slaves, and cotton from West Africa.

In Ancient Rome, soldiers were paid in salt, and our modern word 'salary' is derived from the Latin word 'salarium', which means 'salt money'.

Tea Money

Tea leaves were used as money in Russia, Tibet, and China. 'Tea bricks', which are blocks of whole, or finely ground tea leaves, were used for trade, since they were easy to carry.

Why did people start using metal as money?

We know that in ancient times, cattle were often regarded as money.

However, cattle could not be carried around easily when you went shopping, or if you wanted to trade. So, Man began to look for a more convenient way of trading. He started to use lumps of metal like iron, silver, or gold as money.

Some historians believe that the Chinese started using tiny metal knives and spades as money as early as 1000 BC. The people of Asia Minor (now in Turkey), the Greeks, and the Romans also started to use coins made of silver.

By the Middle Ages, coins were stamped by an issuing authority, and made of uniform weights so that their value could be fixed. The use of coins soon became very popular, because they were so convenient. Moreover, since the value of each coin was fixed, trade became easier too.

Roman coins

Greek coin

Why was coin making a lengthy process in ancient times?

In ancient times, artisans made everything, including coins, using simple tools. So, the final results depended very much on skill.

Coins were either cast in a mould, or hammered out with hand held dies. The minting of coins was, therefore, a laborious process. The mint consisted of just a cluttered workshop where a master coiner and his assistants laboured away, stamping coins by hand.

They hammered the sheets of metal into the required thickness, and then, cut out blank coins with a hand punch. The blank coins were trimmed to the desired size, and stamped with a hand held die.

In the 15th century, simple machines took over from simple tools. In the 18th century, massive steam engines transformed ingots of raw metal into thin sheets. Other steam engine powered machines cut the blank coins, and stamped them.

Why were the first banks in Ancient Greece different from today's banks?

In Greece, the first banks were the temples. One reason for this was that the temples offered a secure place to keep gold and silver.

During the wars between the Greek states, temples were spared, for all Greeks had a common religion. So, the temples of Ancient Greece were very rich. But although they acted as banks by being places of security, they didn't grant interest on the money deposited.

There were also private banks in Ancient Greece. They were like moneylenders. They would set up tables in the market place, and conduct their business from there.

The banks of Ancient Greece accepted money for safe keeping, and lent money. Of course, though they did not pay any interest on the deposits taken, they did charge a heavy interest on the money lent!

First Paper Money

Paper money was first used in China by a group of merchants and businessmen in the same place where printing was also invented. The name of the note was jiaozi.

● *Radha Nair*

How did money evolve in Ancient Rome?

Like the Ancient Greeks, the Romans also used the barter system at first. This worked well when Rome was just Rome. But as the city grew into a republic, and the republic grew, and expansion occurred, bartering became more and more inconvenient and ineffective.

The republic had plenty of trading partners, and as a result, required a system of currency and coinage. Romans began using small chunks of metal, usually bronze, as pieces of money. These were known as 'aes rude', or 'raw bronze'. In time, these bronze pieces evolved into actual minted coinage, known as 'aes signatum', or 'signed bronze'.

The New Ten Rupee Coin

The Reserve Bank of India has released India's first ever bimetallic coin, of the denomination ₹ 10. The metal on the outer side is nickel-bronze, and the inner side is ferrous steel.

Why is the Indian rupee associated with the British?

Today, when you want to buy something, your parents will give you money in rupees. But the rupee is a fairly new form of currency in India. In fact, the rupee, as we know it today, was introduced in 1835 by the British. However, though different types of coins were used in India and South East Asia for more than three thousand years, they were not standardised.

When the British East India Company arrived in India for purposes of trading, each of the princely states had its own rupee, which was called 'rupiya'. Did you know that there were more than three hundred different kinds of rupiyas at that time?

The British East India Company issued a standardized Indian rupee that was circulated in all the territories that it took over. It was made of silver, and it replaced all the existing 'rupiyas'.

Why are the coins of Ancient India truly fascinating?

Coins in ancient India were made mostly of silver. They had motifs drawn on them, and these motifs generally reflected nature, and showed the sun, animals, and trees.

Some coins had geometric designs on them, others had mythological figures. Each dynasty had its own coins.

The early coins of the Gupta period also showed important events, like royal weddings and the horse sacrifice.

The Satavahanas, who were the early rulers of the region between the Godavari and Krishna Rivers, had coins of copper, lead, and silver. These coins often showed elephants, lions, and bulls.

The coins of South India usually bore the crests of different dynasties, such as the boar, bull, tiger, fish, bow and arrow, lotus, and lion.

So, we see that the coins of Ancient India were truly fascinating in their diversity, for they stood for different kingdoms.

Curious Fact

The First Bank Note

A banknote allowed the person carrying it to claim an amount of precious metal equal to that mentioned in the note.
In Europe, Stockholms Banco, a predecessor of the Bank of Sweden, issued the first banknotes. In 1667, the bank ran out of coins to redeem its notes, and ceased operating in that year.

Why do we say the British changed Indian currency?

The British first settled in three main regions of India. They were Western India, South India, and the Eastern Province of Bengal.

The coins they minted then were also of three types to make them more acceptable to the areas where they were issued. So, the coins of Bengal and Western India had Mughal designs, while South Indian designs were used for those issued in Madras.

Some coins were also struck in the English pattern. The gold coins were called Carolinas, the silver coins Angelinas, the copper coins were called Cupperoons, and the tin coins were known as Tinnys.

In 1835, the British passed the Coinage Act for the issue of uniform coinage. The images of native rulers were replaced by portraits of the monarchs of Great Britain to indicate British supremacy.

What is the story behind currency?

One of the first stable currencies was the gold coin called the 'solidus', issued in the Byzantine Empire.

The penny, which became a standard coin in Europe during the Middle Ages, was introduced by a Frankish king around the 8th century. In time, it was established that 12 silver pennies were equal to one Byzantine gold solidus.

Soon, many European countries were issuing silver pennies of their own, and in each case, 12 pennies were equal to the Byzantine gold solidus. Twelve pennies together made one silver shilling, 20 shillings made a pound of silver. Shillings and pounds became coins in their own right in due course of time. The dinar, which was issued in Damascus around 690 AD, and the Venetian ducat, were other currencies that were widely accepted. One of the most popular currencies today is the dollar, which is derived from a large silver coin known as the thaler.

Curious Fact

Swiss Banks

Swiss banks were famous for their stability, and the privacy that they give to their customers. In some accounts, even the depositors are only known by a number! Only the senior most officials of the bank know the details of such accounts. If you had an account in a Swiss Bank, the bankers were not allowed to disclose any information about it without your consent. Recently, the Swiss government changed the banking rules.

Why were a new series of currencies introduced in India after independence?

After Indian independence, the first banknote to be issued was the one rupee note. It was issued in 1949, and the portrait of King George was replaced with the symbol of the lion capital of the Ashoka pillar.

From 1951, the inscriptions on the notes were printed in Hindi also. In 1954, three new notes were issued. They were of Rs 1,000, Rs 5,000, and Rs 10,000 denominations. Many new banknotes were also introduced. They contained symbols that reflected India's progress in science and technology, as well as traditional art forms.

If you look at a banknote carefully, you will see the words 'satyameva jayate' written on it. This legend was added for the first time in 1980. In 1996, the Mahatma Gandhi series of banknotes was introduced.

Why were banks started?

Banks began long ago, around the third century BC, when temples in Mesopotamia began accepting deposits of precious metals for safe keeping.

Since the temples were very wealthy, they also started giving loans to people. In Ancient Greece and Rome, moneylenders would also transfer deposits from one customer's account to another. In the Middle Ages, as trade and commerce grew, moneylenders in Italy began to set up street stalls called 'bancas' where they would exchange currency, and accept deposits.

These bancas developed into the first commercial banks. The goldsmiths soon realized that not everyone was going to ask for his gold back on the same day. So, they started lending out a part of the gold that had been given to them for safekeeping. In time, they became bankers.

How did banking develop in India?

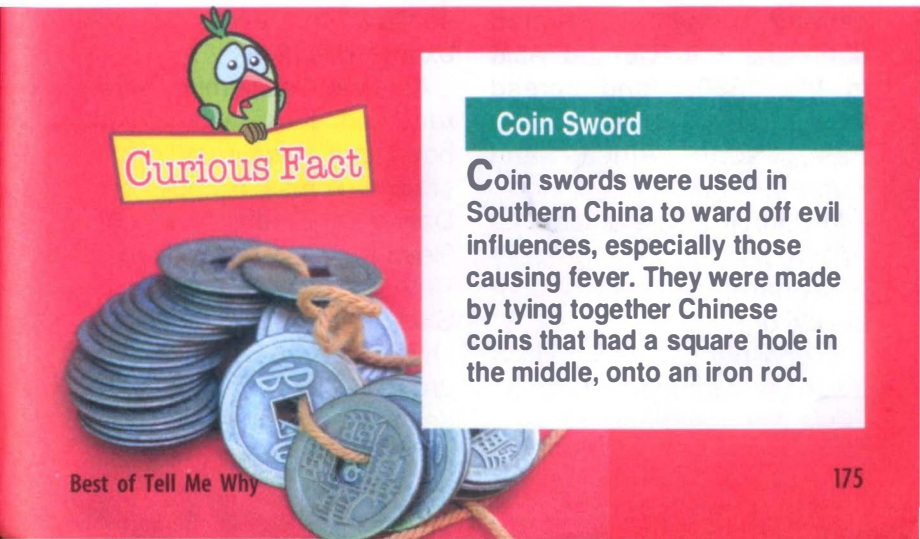
The first bank in India was established in 18th century. It was The General Bank of India, and it was followed by the Bank of Hindustan and the Bengal Bank.

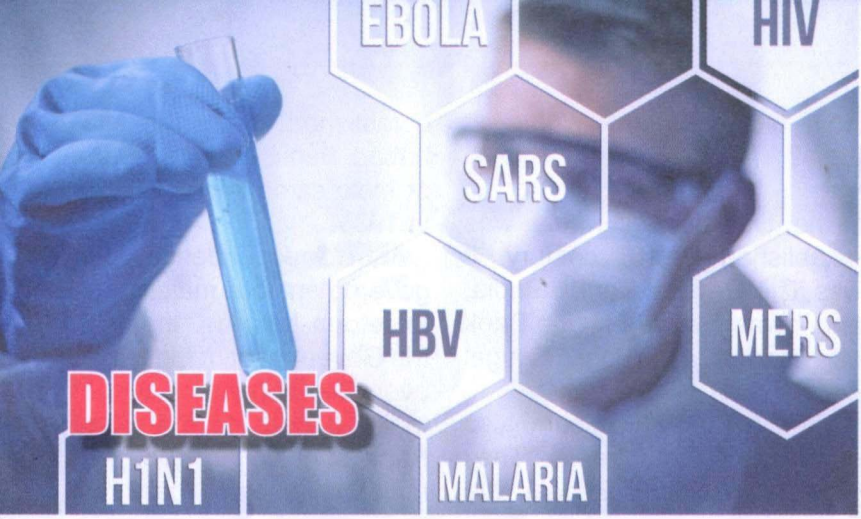
The East India Company also established three banks. They were the Bank of Bengal, the Bank of Bombay, and the Bank of Madras. These banks were independent units, and together called the presidency banks. They were private banks, owned mostly by Europeans.

In 1865, for the first time, an exclusively Indian bank was established. It was the Allahabad Bank. Reserve Bank of India came into existence in 1935.

After independence, the government took major steps to reform banking. In 1955, the Government of India took over the Imperial Bank of India. It became the State Bank of India. In 1969, 14 major commercial banks in the country were nationalized.

In 1991, there was liberalization of banking practices, and the country was flooded with many new generation banks, changing the future of the Indian banking system.


Curious Fact
Coin Sword
Coin swords were used in Southern China to ward off evil influences, especially those causing fever. They were made by tying together Chinese coins that had a square hole in the middle, onto an iron rod.



Why was the plague that erupted in the 14th century regarded as the most devastating epidemiological event in history?

The plague known as the Black Death, spread rapidly through Europe in the 14th century. It may have erupted somewhere in Central Asia in the 1330s, and spread westwards to the Middle East, North Africa, and Europe.

In Europe alone, at least 25 million people died, possibly more than one-third of the population of Europe.

Everywhere, countless bodies were buried by surviving family and friends, tossed onto rattling carts, buried in pest pits, or left to rot in the midday sun. In Venice, the dead were rowed out to sea.

There were mass graves stacked high with decaying corpses. In some places, even the funeral bells and weeping ceased, for everyone was expected to die!

As the epidemic slowly retreated, there was an outpouring of macabre art and literature across Europe. 'The Dance of Death', 'The Grim Reaper', 'Fearsome Visions of Hell' and 'The Symbol of the Skull and Crossbones' are all chilling reminders of the dreaded disease that once devastated Europe.

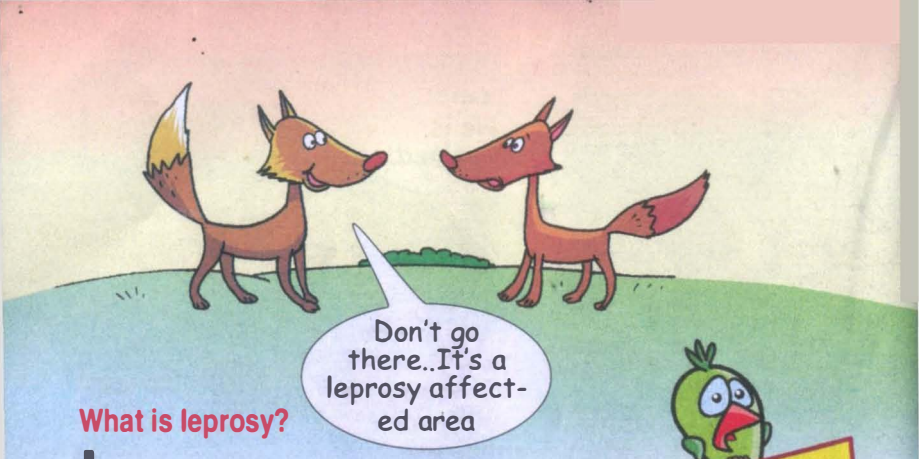
Why was quarantine used?

Quarantine is a state of isolation for people who have been exposed to a contagious disease, or have come from infected places.

The word initially stood for 'a period of isolation'. In 1377, the Venetian colony of Ragusa detained travelers on a nearby island for 40 days, or 'quaranta giorni' in Latin, from which the word quarantine was derived.

In the 14th and 15th centuries, the Italian states imposed strict quarantine regulations during the time of plague, which was soon followed by other countries.

Plague- A Painting



What is leprosy?

Leprosy is a chronic bacterial infection caused by the bacillus Mycobacterium leprae. After a long incubation period, it can turn fatal, damaging the nerve, skin, and bones. In India, there are evidences of leprosy in historical documents since 600 BC.

In the olden days, leprosy was considered a highly contagious disease. Diseased and the disfigured patients were shunned by society, due to fear of infection. In the 19th and 20th centuries, isolation of the infected was declared the appropriate policy towards leprosy. Leprosy colonies were set up in many parts of the world, mostly on off-shore islands.

Nowadays, there are more appropriate ways to treat the disease, including effective antibiotics. Over the past two decades, there has been an encouraging reduction in the prevalence of leprosy all over the world.

Curious Fact

Ring a Ring o' Roses

The nursery rhyme, 'Ring a Ring o' Roses', is about the Black Death that struck Europe in the medieval era. The 'roses' are said to refer to the inflamed rose-coloured ring of buboes, and 'all fall down' describes the ghastly deaths, resulting from the plague.

What is cholera, and how does it affect people?

Cholera is a water-borne disease caused by the bacterium Vibrio cholerae. Its sudden onset, and the quick death it brings, make cholera a fatal disease.

The victims suffer severe pain in the stomach, violent vomiting, and uncontrollable watery diarrhea. The resultant dehydration leads to shrunken features, and a bluish tinge all over the body, accompanied by shock, and finally, death.

The first cholera pandemic that spread through Asia erupted in 1817 in the populous Ganges- Brahmaputra delta in India. Hence, the term 'Asiatic cholera' is used in the west.

The devastating effects of the dreaded diseases felt mostly on the pilgrimage centres in Asia, and on the stinking slums of the industrial towns of Europe and North America.

Khole and Rhino

The word 'choler' has its origin from the Greek 'khole' meaning bile, and 'rhino', meaning 'to flow'. It has been used since ancient times to describe any periodic diarrhea affliction.

Ronald Ross

Why is the British Army doctor Ronald Ross remembered in medical history?

A British doctor, Ronald Ross, was the first to make the connection between mosquitoes and malaria.

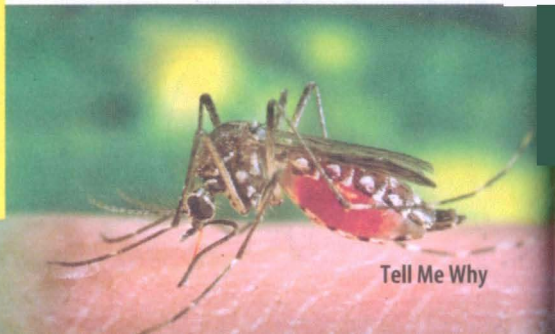
Dr. Ross was inspired by the Scottish doctor Patrick Manson's discovery of the role of mosquitoes in lymphatic filariasis. While stationed at Secunderabad in India, Dr. Ross dissected, and examined the stomachs of thousands of mosquitoes to reveal the mosquito connection.

He eventually found 'pigmented crests' protruding from the wall of a dappled-wing mosquito that had fed on a patient with malaria. It was clear evidence of the malaria parasite.

In 1897, Ross reported his remarkable discovery. Ross was awarded the Nobel Prize for Medicine in 1902. The day he made his discovery, 20th August 1897, was later known as 'the Mosquito Day'.

Mosquito Alert!

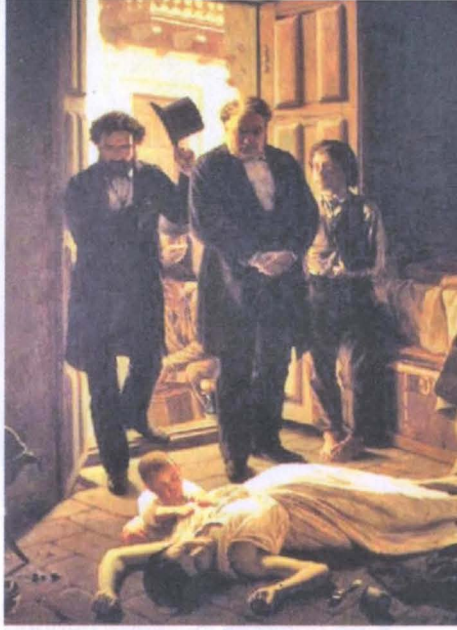
Walter Reed of the US Army, and his medical team, proved that mosquitoes transmitted yellow fever.



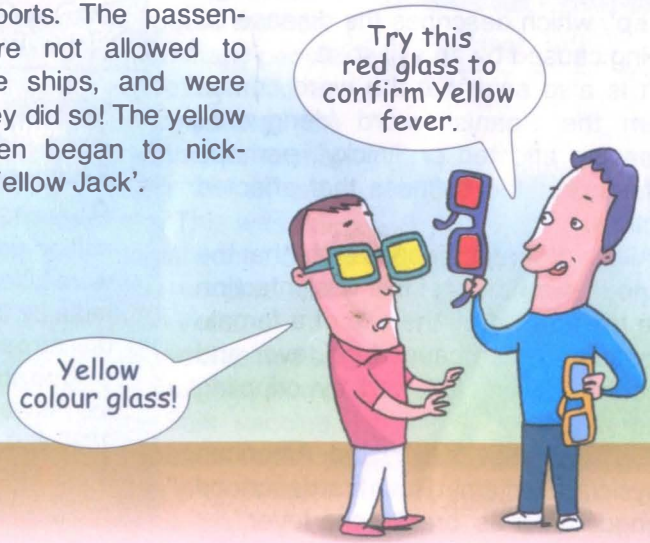
Why is yellow fever called so?

Yellow fever, an acute viral disease, is so called, because the victim develops yellowing of skin and eyes when the fever attacks the liver, and causes jaundice. Griffin Hughes coined the term in 1750. Mosquitoes, notably the female Aedes aegypti, transmit this disease.

In the past, yellow fever was so common among sailors that infected ships carried a special 'Yellow Jack' flag as a warning, and were isolated outside ports. The passengers were not allowed to leave the ships, and were shot if they did so! The yellow fever even began to nicknamed 'Yellow Jack'.



A Portrait depicting Yellow fever



Sight from a Dengue affected area

How did the word 'dengue fever' originate?

The origin of the word 'dengue' is not clear. One theory states that it comes from the Swahili phrase 'ka-dinga peep', which describes the disease as being caused by an evil spirit.

It is also said that the word comes from the Spanish word 'denguero', meaning affected or 'finicky', perhaps referring to the stiffness that affected victims.

All the different theories state that the various symptoms of this viral infection are transmitted by the bite of a female mosquito. It can cause high fever and agonizing pain, followed by crippling after effects.

Perhaps, that is why the American physician Benjamin Rush first described dengue fever as 'break-bone fever.'

Plague in India

About 12.6 million people were killed in India by the disastrous plague epidemics between 1898 and 1948.

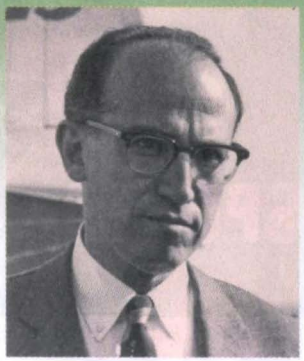
● *Dev Nath*

Why are the scientists Jonas Salk and Albert Sabin admired by the rest of the world?

Polio, a viral disease, was called a cruel disease, as it affected the nervous system and crippled many people around the globe, especially children.

In 1955, the USA celebrated the first large scale polio immunization of over 4,00,000 children with a safe and effective medicine. This was due to the American virologist Jonas Salk, who developed it. His vaccine was badged on a dead polio virus.

Another scientist, Albert Sabin, also developed a vaccine that had some advantages over the Salk vaccine. Eventually, it was Sabin's vaccine that became acceptable in most countries.



Jonas Salk

Albert Sabin

SPORTS

How did World Cup football begin?

Football has been played in different countries, for centuries. About 2000 years ago, a form of football was being played in China. However, modern football was born in UK, in 1863. International football began in Paris on May 21st,1904, with the establishment of FIFA, which is the short form for the Federation Internationale de Football Association.

Football became an official competition at the 1908 Summer Olympics in London. FIFA and its president Jules Rimet then decided to stage an international tournament outside of the Olympics.

On May 28th, 1928, the FIFA decided to stage a world championship. In 1930, FIFA named Uruguay as the host country of the inaugural World Cup tournament. In total, thirteen nations took part - seven from South America, four from Europe, and two from North America. Thus, World Cup football was born.

Why is it said that the World Cup victory in 1983 was a turning point in Indian cricket?

Kapil Dev with the Prudential World Cup 1983

When the Indian captain Kapil Dev lifted the Cricket World Cup, the sporting ambitions of our nation also rose to new heights. The third Cricket World Cup was held in1983, in England. India had never won the World Cup before, and even die-hard supporters had not given a chance for India to win the cup. The Indian captain thought otherwise.

Exciting cricket was on show in the World Cup. Surprisingly, India entered the final. They took on the reigning champion, the mighty West Indies in the final, and created a sensational upset by defeating them.

Kapil's devils became heroes in India. Interest in cricket soared. India's sports scenario also benefitted greatly. India gained fame on the cricket field, and crores of rupees in revenue off it.

Why is tennis called by this name?

Tennis is played with racquets, and a light, elastic ball by two players, or pairs of players, on a rectangular court divided by a low net. It is played indoors and outdoors, on hard surface, clay, and grass courts. A player hits the ball over the net, and into the opponent's half of the court in such a way that the opponent cannot reach, or return it.

Modern tennis is derived from the ancient game of lawn tennis. The rules of modern tennis were defined by Walter Clopton Wingfield. Both men and women play tennis, and there are four major international competitions, which together are known as the Grand Slam tournaments. They are the Australian, French, and US Open, and Wimbledon.

Did you know that the name 'tennis' comes from the French word 'tenet' which means 'take this'.

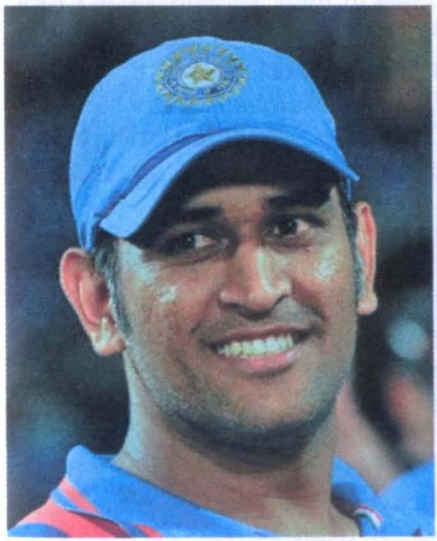
Payyoli Express

P.T. Usha, is the first Indian woman athlete, to reach the final of an Olympic event. She was awarded the Arjuna award and the Padma Shri for her contributions to athletics.

● *Sneha Rao*

Cricket World Cup and India

India has three world cup victories. The first one was the Prudential World Cup in 1983. The team was led by Kapil Dev. The second victory was in the ICC Twenty20 World Championship in 2007. Defeating Pakistan by 5 runs, India became the first World Twenty20 Champions there. India again lifted the ICC Cricket World Cup in 2011. M.S. Dhoni captained the team that was victorious in the last two World Cup matches.



M. S. Dhoni

Abhinav Bindra

Golden Bindra

Abhinav Singh Bindra is the one and only Indian to win an individual gold medal at the Olympic Games. At the 2008 Beijing Olympics, he bagged the gold medal in the 10 m Air Rifle event, and created history. It was also India's first gold medal since 1980, when the men's field hockey team won the gold.

Sachin Tendulkar

Why is Sachin Tendulkar called a cricketing legend?

Given his first cricket bat at the age 11, Sachin Tendulkar was just 16 when he became India's youngest Test cricketer.

In 2005, he became the first cricketer to score 35 centuries in Test matches. In 2007, Tendulkar became the first player to record 15,000 runs in one-day international matches.

The list of his achievements is amazing- and he has broken record after record in a career that spanned 24 glittering years. Tendulkar played 664 international cricket matches in total, scoring 34,357 runs. On 16th November 2013 after playing his 200th and final Test match, against the West Indies in Mumbai's Wankhede Stadium, Tendulkar retired from test cricket.

Why is Dhyan Chand considered one of India's greatest hockey players?

Dhyan Chand is a name that has become synonymous with hockey.

Dhyan learned to play hockey when he joined the Indian army, at the age of 16. It is said that Dhyan earned the nickname 'Chand', which is the Hindi word for 'moon', because he used to practice hockey by moonlight, in the days before flood lights!

Viswanathan Anand

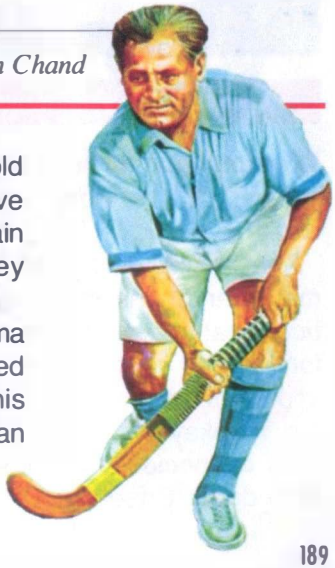
Why is Viswanathan Anand world famous?

Viswanathan Anand, a world-class chess champion was given the name of Lightning Kid because of the speed with which he played. Anand was the youngest Asian to win the International Master's Title at the age of 15. At 16, he became the National Chess Champion and at eighteen, India's first Grandmaster. In 1987, Anand became the first Asian to win the World Junior Chess Championship.

Anand was the runner up to Kasparov in the World Championship final in 1995, and he became the first Asian to win the World Chess Championship title in 2000.

For his outstanding performance and achievements, Anand has received many awards. He is known as the 'One Man Indian Chess Revolution,' and enthusiastically promotes the game, through innovative methods in India.

Dhyan Chand



Chand helped India in winning gold medals in hockey in three successive Olympics games, and was the captain of the gold medal winner Indian Hockey team in the 1936 Berlin Olympics.

Dhyan Chand was awarded the Padma Bhushan, and his birthday is celebrated as National Sports Day. Throughout his career, Dhyan Chand scored more than 1000 goals. On December 3rd, 1979 this hockey legend passed away.

Question of the Month

Why don't human beings have tails?

Have you ever wondered why Men don't have tails?

The answer is simple. Each animal strengthens those parts of its body that are particularly useful. In four-legged animals, tails are very important to maintain balance, for e.g. monkeys.

As a species that lives on land, Man doesn't need tails for hanging on tree branches, or for balancing. A rudimentary 'tail' can be found at the base of our spine. It's called the coccyx, or tailbone. It's just too small to poke out behind us, so we don't know it's there!

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GK CONTEST - 18 WINNERS

Winners of the **GK Contest - 18, ANIMALS**- held in the NOVEMBER issue of Tell Me Why.

1. R. Chandra Priya
17-1-158 Kandasamypuram, Chamrajpet, Salem district, Tamil Nadu.

2. Sharon Anoop
Karinattu House, Malappuram , Kerala.

3. Daya D. Pai
B/705 Orchid Residency, Deonar Road, Mumbai, Maharashtra.

4. Abir Sarkar
'Arom', Manoram Nagar, Dhanbad, Jharkand.

5. Braja Vivek Murmu
Rly Q-No:234, Unit-4, Kharagpur, West Midnapur, West Bengal.

GK Contest -18 ANIMALS - ANSWERS

1. Giant Anteater 2. Giant Panda
3. Mandrill 4. Koala Bear 5. Raccoon

SPECIAL CONTEST

Here's a contest for our readers. Identify the **AUTHORS**, of the classics given here. All you need to do is send us an email naming the author of each book with the proper number.

(PLEASE GIVE YOUR POSTAL ADDRESS ALSO IN THE E-MAIL)

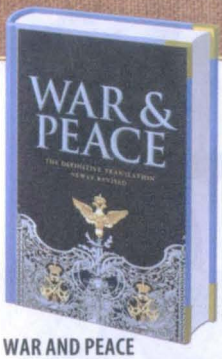
You are also welcome to send your answers by post.

100 winners will be awarded prizes. In case there are more than hundred correct entries, the winners will be chosen by lot.

Last Date to receive entries: 2015 JANUARY 25

Our e-mail address: childrensdivision@mmp.in

Please enter **TMW - SPECIAL CONTEST** in the subject line of your email.



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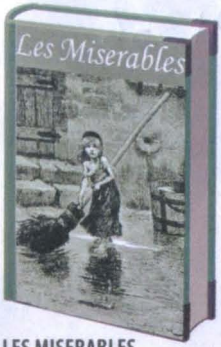
WAR AND PEACE



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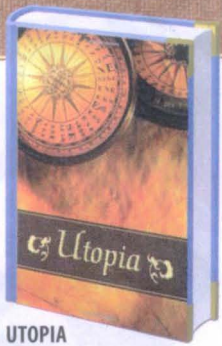

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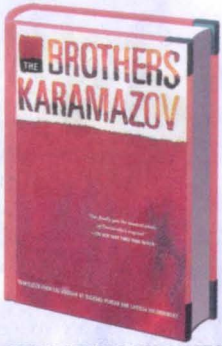

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THE BROTHERS KARAMAZOV

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